FINANCIAL PRODUCT DESIGN AND FINANCIAL INCLUSION IN MICROFINANCE INSTITUTIONS IN RWANDA

A CASE STUDY OF GOSHEN FINANCE PLC

By

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DECLARATION

This dissertation titled "**Financial Product Design and Financial Inclusion in Microfinance Institutions in Rwanda"** is my original work, it has never been submitted before for any other degree award to any other University.

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APPROVAL

This dissertation titled “**Financial Product Design and Financial Inclusion in Microfinance Institutions in Rwanda”** has been done under my (our) supervision and submitted for examination with my (our) approval.

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Sign: ____________________________ Date: 23.10.2023

DEDICATION

This work is dedicated to my parents and family who encouraged me in all, to my friends who trusted and encouraged me during my studies.

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I acknowledge this project to the glory of Almighty God, the Lord of Universe for giving me the grace and for making it possible for me to successfully complete this project.

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LIST OF ACRONYMS AND ABBREVIATION

ANOVA:	: Analysis of Values
FI	: Financial Inclusion
FL	: Financial Literacy
FPD	: Financial Product Design
IT	: Information Technology
MFIN	: Masters of Finance
SPSS	: Statistical Product and Service Solution
ULK	: Université Libre de Kigali

ABSTRACT

The general objective of this study was to assess the effect of financial product design, the financial literacy on the financial inclusion by microfinance institutions in Rwanda, specifically within the Goshen Finance Plc. This study had the following objectives, to examine the effect of financial product design on financial inclusion in Goshen Finance Plc, to examine the effect of financial literacy on financial inclusion in Goshen Finance Plc, and to establish the moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc. This Study was supported by the Social Learning Theory, the Prospect Theory, Theory of Empowerment, and the Finance – Growth Theory. This research is census research design, and the study population comprise 169 customers of Goshen, sampled using simple random sampling technique. The researcher used primary data in this study. A closed end questionnaire was utilized. Descriptive research design and correlation analysis were utilized to assess the data and results generalized for the entire population, while multiple regression was used to test hypotheses. To compute and analyze the data in this study, available statistical product for service solution (SPSS 27) was used. The multiple regression proved that financial product design (centric approach, product feature, and affordability) contributes 32.4% on financial inclusion in Goshen Plc. The F-calculated was 53.615 and the p-value was 0.001, which was less than the significance level (0.05). Other factors being constant, 1% increase in customer centric approach, product feature, and affordability would lead respectively to 0.224 units, 0.320%, and 0.437% increases on financial inclusion in Goshen Plc. The model 2 revealed that financial literacy contributes 53.3% on financial inclusion in Goshen Plc. Further, an F-statistics of 27.340 showed that the model of the study was significant as evident by the significance level of 0.000 < 0.05. Other factors being constant, 1 unit increase in financial decision making will lead to 0.290 units increase on financial inclusion in Goshen Plc, while 1 unit increase in Risk management will lead to 0.508 units increase on financial inclusion in Goshen Plc. On the basis of findings, all hypotheses were accepted at 5% level of significance due to the fact that the results indicated that there is positive and significant effect between variables. The study recommends that GOSHEN PLC ensure that the loan repayment be favorable to its customer in order to ensure its repayment, and to provide teachings or training to its customers in relation of computing interest rates in order to ensure they acquire enough financial literacy, which may enhance more financial inclusion in the MFI.The interaction between financial product design and financial literacy revealed that a joint unit increase in the interaction between financial literacy and financial product design increases financial inclusion levels by 0.207 units.

Key words: Design, Financial Product, Financial inclusion, financial literacy, Microfinance

Words count: 459

DEFINITION OF OPERATIONAL KEY TERMS

Financial Product Design	Refers to the process of conceptualizing, developing, and creating financial products and services that cater to the specific needs and preferences of customers..
Financial Inclusion	Refers to the availability and accessibility of essential financial services and products to all segments of society, especially those traditionally excluded or underserved by the mainstream financial systems.
Financial Literacy	Refers to the knowledge, skills, and understanding individuals possess about financial concepts, practices, and principles that enable them to make informed and effective financial decisions.
Microfinance Institutions	Refer to specialized financial organizations that provide a range of financial services, including small loans, savings accounts, insurance, and other basic financial products, to individuals and businesses with limited access to traditional banking services.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

In this chapter, the research focus on the overview of the research to be undertaken through the study background, the statement of the problem, the general as well as specific objectives, research questions used for the study, the significance of the study, its scope and delimitation, as well as the organization of the study.

1.1. Background of the Study

Financial inclusion has emerged as a pressing issue within the realm of monetary policy, especially in the least developed countries. The United Nations underscored the importance of ensuring financial inclusion in 2019 (Duray, 2021). However, despite global efforts, a substantial portion of the population remains unbanked, with approximately 1.7 billion adults lacking access to formal financial services in 2019 (WB, 2021). Many of these unbanked individuals are women from poor rural households or are not actively engaged in the workforce. Financial exclusion, as defined by Gloukoviezoff (cited in Kakooza, 2022), deprives certain community groups of access to the financial system.

The challenge of financial inclusion is exacerbated by complex financial products, particularly in the African context, which, while attractive to certain segments, can pose significant challenges for individuals with limited financial literacy and restricted access to financial services (Beck & Honohan, 2022). To promote financial inclusion, there is a need to design financial products and services that are straightforward, transparent, and tailored to the diverse needs of individuals with varying levels of financial literacy (Kakooza, 2022). Initiatives focusing on financial education, consumer protection, and user-friendly digital platforms are essential to bridge the gap and ensure broader access to appropriate financial services.

In Asia, financial inclusion remains a significant challenge, with disparities in access along gender, income, and urban-rural lines (Demirgüç-Kunt et al., 2018; Le and Chuc, 2019). Limited financial knowledge can deter individuals from participating in formal financial markets (Le and Chuc, 2019).

In Africa, financial exclusion persists due to factors such as social and ethnic discrimination, with rural populations often being considered too costly for financial institutions (Beck & Honohan, 2022). In Nigeria, despite a decade of financial inclusion strategies, a high exclusion rate prevails, partly attributed to the complexity of financial products and hidden fees (Beck & Honohan, 2022).

In East Africa, Kenya has demonstrated innovation in banking and financial systems, largely driven by the success of mobile money platforms like M-Pesa (Kakooza, 2022). However, low financial literacy remains a barrier to financial inclusion.

In Rwanda, significant progress has been made in improving financial inclusion, with 89% of adults having access to financial products and services. However, a substantial portion only holds bank accounts (Rwanyindo, 2021). This progress has led to the birth of new financial services and job creation but may also deter inexperienced individuals from participating in financial markets. Financial inclusion, when coupled with financial literacy, can significantly enhance the well-being of low-income groups.

Microfinance institutions (MFIs) play a crucial role in Rwanda, offering a range of financial products, including microcredits, savings accounts, insurance products, remittances, financial education, and mobile banking (Ndabananiye, Mutabazi, Nizeyimana, Niyitegeka & Elijah, 2021). However, the specific product offerings vary among MFIs, tailored to the needs of their target market. The regulatory framework and market conditions also impact the availability of financial products (Aron, 2020).

The current study aims to assess the financial product design and its impact on financial inclusion in microfinance institutions in Rwanda, using Goshen Finance Plc as a case study. By understanding the complexities of financial product design and its effects in the Rwandan context, this research seeks to contribute to the ongoing efforts to promote greater financial inclusion in the region.

1.2. Statement of the Problem

Rwanda places significant emphasis on financial inclusion as a vital driver for achieving its development and poverty reduction objectives. Microfinance Institutions (MFIs) play a pivotal role in this regard, forming the bedrock of the Rwandan economy, in alignment with the National Bank of Rwanda's (NBR) vision for 2024. The level of financial inclusion in Rwanda stands at a commendable 93%, closely approaching the 2024 target of 100% financial inclusion. However, challenges persist in further reducing the number of individuals without transaction accounts, either with traditional banks or mobile money services. MFIs exemplify the preferred banking model for Rwandans, and the Rwandan government has also established and supported Umurenge SACCO to enhance financial capabilities and provide financial accessibility to those unable to secure substantial loans from commercial banks (Twesige et al., 2021).

While Rwanda has made substantial progress, there are specific issues that affect the country's level of financial inclusion. Challenges include limited infrastructure, technological barriers, and constrained access to formal financial services, especially for residents in rural areas (Ntuite, 2020). Additionally, Rwanda faces low financial literacy levels, particularly among vulnerable and marginalized groups, hindering their ability to effectively use and benefit from formal financial services (Rwanyindo, 2021). These challenges indicate a knowledge gap in understanding how to further enhance financial inclusion in Rwanda.

Moreover, the design of financial products can inadvertently exclude economically disadvantaged individuals. Complex investment products, such as derivatives, structured products, and hedge funds, demand a higher level of financial literacy and comprehension. Individuals with limited financial knowledge may struggle to evaluate the associated risks, leading to potential losses and discouraging participation in formal financial markets. The intricacies of leverage and complex loan structures can also be intimidating and may result in hidden fees, variable interest rates, and other terms that are difficult to comprehend (Duray, 2021).

Therefore, this study seeks to address the existing knowledge gap by investigating the impact of financial product design and financial literacy on financial inclusion within microfinance institutions in Rwanda, with a specific focus on Goshen Finance Plc. The aim is to gain insights into how the design of financial products and the level of financial literacy can be optimized to drive higher financial inclusion and reduce disparities, especially among underserved populations in Rwanda.

1.3. Purpose of the Study

The purpose of the study was to assess the effect of financial product design, the financial literacy on the financial inclusion by microfinance institutions in Rwanda, specifically within the Goshen Finance Plc.

1.4. Objectives of the Study

1.4.1. General Objective

The main objective of this study was to assess the effect of financial product design on the financial inclusion by microfinance institutions in Rwanda, specifically within the Goshen Finance Plc.

1.4.2. Specific Objectives

i. To examine the effect of financial product design on financial inclusion in Goshen Finance Plc.
ii. How does financial literacy moderate the relationship between financial product design and financial inclusion in Goshen Finance Plc, and what are the implications for improving access to financial services in Rwanda.
iii. To establish the moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc.

1.5. Research Questions of the Study

i. What is the effect of financial product design on financial inclusion in Goshen Finance Plc?
ii. What is the effect of financial literacy on financial inclusion in Goshen Finance Plc?
iii. What is the moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc?

1.6. Research hypotheses

The following are research hypotheses of the study:

H1: There is a significant effect of financial product design on financial inclusion in Goshen Finance Plc

H2: Financial literacy significantly affects financial inclusion in Goshen Finance Plc.

H3: Financial literacy hold a significant moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc.

1.7. Scope of the study

Scope of the study was divided into domain, geographical and time scope.

1.7.1. Time Scope

The research is focusing on the period of 2019 to 2022.

1.7.2. Scope in Domain

The study was based in the domain of finance, specifically within the financial product design and financial inclusion.

1.7.3. Geographical Scope

The study was carried out in Goshen Finance Plc Headquarters, located in Nyarugenge District of Kigali City.

1.8. Significance of the Study

This study is important to practitioners, users, banks and researchers. The management staff of Goshen Finance Plc benefits from this study as it gives feedback on enhancement strategies to implement effective financial product design and financial literacy towards financial inclusion performance. This study helps practitioners to assess the effectiveness of current policies, identify gaps or inconsistencies, and recommend improvements that can facilitate greater financial inclusion.

The researchers worldwide is able to use the findings of this study to formulate viable financial policy documents that effectively could be in turn boost effective policies related to the financial inclusion.

The findings and recommendations of this study informs policymakers, regulators, and stakeholders in making informed decisions and formulating evidence-based policies. It provides valuable insights into the financial product design and interventions that can be implemented to enhance financial inclusion in Rwanda, fostering sustainable economic growth and reducing poverty.

Academicians and other researchers find this study useful as a point of reference. The findings increase stock on the existing of theoretical knowledge and empirical skills related to current study. This research thesis helps current researcher to be awarded Master’s Degree with honours in Finance through academic regulations of Kigali Independent University.

1.9. Definition of Key Terms

1.9.1. Financial Product design

Financial Product designdeals with the initial concept development (sometimes called "ideation"), market analysis, product documentation development, internal approval and regulatory registration for new products launched by Financial Services companies e.g., banks, insurers, investment managers, etc (Barajas & Naceur, 2020).

Financial Product designis connected with the way in which manage and use the money, such as a bank account, a credit card, insurance, etc.: and connects customers with comprehensive range of financial products (Beck & Demirgüç-Kunt, 2022).

Financial Product design is the way for designing a financial product so that it meets the needs of its intended consumers should be a key goal of any financial service provider. Banks design their financial products by analyzing market trends, identifying customer needs, and evaluating potential risks and returns (Beck & Honohan, 2022).

1.9.2. Financial literacy

Financial literacy is the experience of financial principles and concepts, such as financial planning, compound interest, debt management, efficient investment strategies, and money-time value. Financial illiteracy can lead to poor financial choices which can have negative effects on an individual's financial well-being. The key steps to improve financial literacy include learning the skills to create a budget ability to track expenses, learning the strategies to pay off debt, planning for retirement effectively. Such measures can also include financial specialist counselling. Educating about finances involves understanding how money works, developing and achieving financial goals, and handling internal and external financial challenges (Buch, 2020).

Financial literacy refers to the ability to understand and apply different financial skills effectively, including personal financial management, budgeting, and saving. Financial literacy makes individuals become self-sufficient, so that financial stability can be accomplished (Calderone & Sarr, 2020).

Financial literacy is the possession of the set of skills and knowledge that allows an individual to make informed and effective decisions with all of their financial resources. Financial literacy focuses on the ability to manage personal finance effectively, which requires experience of making appropriate personal finance choices, such as savings, insurance, real estate, college payments, budgeting, retirement and tax planning (Carpena & Zia, 2022).

1.9.3 Financial inclusion

Financial inclusion is defined as the availability and equality of opportunities to access financial services. It refers to a process by which individuals and businesses can access appropriate, affordable, and timely financial products and services. These include banking, loan, equity, and insurance products (Sampson & Zia, 2021).

Financial inclusion refers to efforts to make financial products and services accessible and affordable to all individuals and businesses, regardless of their personal net worth or company size including financial products and services that meet their needs transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way, etc. Financial inclusion strives to remove the barriers that exclude people from participating in the financial sector and using these services to improve their lives, it is also called inclusive finance. Financial inclusion is an effort to make everyday financial services available to more of the world's population at reasonable cost in general (Miller, 2020).

Financial inclusion strives to remove the barriers that exclude people from participating in the financial sector and using these services to improve their lives. It is also called inclusive finance in general (Marchetti & Zia, 2021).

1.10. Structure of the Study

A part from general introduction the thesis is subdivided into five chapters:

Chapter one deals with general introductory remarks including the background of the study, objectives of the study, problem statement, research questions, significance of the study, and scope of the study. Chapter two examines pertinent literature review introducing concepts, theories and models and reviews past studies from the global point down to the economic context. Chapter three explains the research design and methodology comprising target number to analyze, statistical design, data collection and analysis.

Chapter four presents the interpretation of research findings, and chapter five brings the paper to a conclusion, it summarizes what was already discussed and draws conclusions. Based on these conclusions, the paper additionally makes recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This Chapter introduces review of related literature on the financial product design, the financial literacy and the financial inclusion within microfinance institutions. Specifically, this part will be discussing within the conceptual review, the theoretical review, review of related literature, and conceptual framework.

2.1. Conceptual Review

2.1.1 Microfinance Institutions

A microfinance institution (MFI) is a type of financial institution that offers small loans to borrowers who wouldn't otherwise have access to credit, according to Tripathi and Badugu (2019). According to Kumari, Azam, and Khalidah (2020), MFIs are financial institutions that offer financial services to low-income people or groups that are typically excluded from normal banking. MFIs are viewed as financial organizations in Rwanda that offer inclusive financial services to those who live in poverty, with an emphasis on women who live in remote and difficult-to-reach locations (Ntuite, 2020).

Over the past 20 years, numerous development strategies have been developed by governments, non-governmental organizations, international development organizations, and others with the goal of eradicating poverty and generating wealth in underdeveloped nations (Duray, 2021). From the early 1990s, microcredit, also referred to as microfinance, has become one of these tactics. Muhammad Yunus, a Nobel laureate and a banker from Bangladesh, popularized and commercialized the idea of lending to the underprivileged. It reflects the provision of financial services for the working poor, who the traditional banking sector views as being too risky or expensive to serve, in the form of savings and credit choices (Kakooza, 2022). According to Miller (2020).., the idea is frequently viewed as a grassroots development tool meant to primarily and equally assist low-income women and men. By the provision of financial services and the financial inclusion of the underprivileged and uncollateralized in society, poverty will ultimately be eradicated.

The scope of microfinance in Rwanda has now extended to include services like insurance and money transfer in addition to providing savings accounts (micro-savings) (Ntuite, 2020). Many have praised these projects as a strategy of eradicating poverty since they allow market forces to function and provide the impoverished the chance to invest in their futures and escape poverty. So, the fact that there are now much more Microfinance Institutions (MFI) than there were ten years ago should not come as a surprise as credit is a crucial tool for enhancing the welfare of the poor in a developing country like Rwanda, both directly (consumption smoothing lessens their sensitivity to short-term income shocks) and indirectly (funding investment in human and physical capital increases their productive capacity) (Mugwaneza, 2019). The poor, who are less risk-averse, frequently want loans for productive projects since it helps them get over their cash flow problems and allows them to make investments that increase income, employment, and production (Ndabananiye, *et al.,* 2021).

Nonetheless, significant research findings are beginning to challenge the too negative image of microfinance as a successful and long-lasting method of reducing poverty. Proof of the impact of microfinance has actually prompted debate because it is difficult to get accurate and affordable data, causation (i.e. attribution) cannot always be demonstrated due to fungibility, and affects are very context-specific (Rwanyindo, 2021). There is still a lot of disputes over the importance of the impacts of microfinance programs on the underprivileged, claim Berhanu, Amare, Gurmessa, Bekele, and Chalchisa (2021). Thirty years after the start of the microfinance movement, Kumari (2020) conducted a thorough assessment of numerous studies on microcredit in Bangladesh and came to the same conclusion: "We have no substantial evidence that it improves the lives of clients in meaningful ways." Further study on the impact of these institutions on the components of their clients are needed, and this study aims at that goal by assessing the impact of financial product design on the financial inclusion within MFI, and with financial literacy as moderator.

2.1.2. Financial Product Design

Beck and Honohan (2022) stated that financial product design in a financial institution refers to the process of creating and developing new financial products or services that cater to the needs and preferences of customers. It involves designing products that align with the institution's strategic goals and comply with regulatory requirements. Kotlikoff (2020) stated that financial Product Development deals with the initial concept development, market analysis, product documentation development, internal approval and regulatory registration for new products launched by Financial Services companies (e.g., banks, insurers, investment managers, etc.).

Financial institutions conduct market research to understand customer needs, identify gaps in the market, and assess the potential demand for new financial products. This research helps in shaping the design of products that meet customer expectations (Kakooza, 2022). They define the features, benefits, and terms of the new financial product based on the market research findings. They consider factors such as target market, risk appetite, regulatory guidelines, and competitive landscape while defining the product (Kotlikoff, 2020). Carpena and Zia (2022) argued that financial product design involves assessing the potential risks associated with the product, and this includes evaluating credit risk, market risk, liquidity risk, and operational risk. Risk mitigation strategies are implemented to ensure the product's viability and stability.

2.1.3 Customer Centric Approach

Successful financial product design begins with a deep understanding of the target customer segments. This involves conducting market research and gathering insights into the financial needs, preferences, and behaviors of customers (Duray, 2021). When designing a financial product, the terms and conditions of use play a critical role in ensuring transparency, clarity, and protection for both the financial institution offering the product and the customers using it. Therefore, financial institutions must adhere to various regulatory requirements when designing financial products. Beck and Honohan (2022) stated that compliance professionals work closely with product designers to ensure that the products comply with applicable laws and regulations.

Duray (2021) also argued that designing financial products involves creating comprehensive documentation, including terms and conditions, disclosures, and legal agreements which ensures transparency and helps customers understand the product's features, risks, and obligations. The excessive use of legal jargon and complex language can make the terms difficult for the average customer to comprehend, which can result in customers agreeing to terms they do not fully understand (Carpena & Zia, 2022).

To address various problematic areas related to terms and conditions of use, financial institutions should focus on making their terms and conditions clear and concise, transparent by disclosing all fees, charges, and important information upfront, fair and balanced by ensuring the terms are not overly one-sided in favor of the institution, and meeting all regulatory requirements and consumer protection laws (Beck & Honohan, 2022). Also, financial institutions may make the terms readily available and easily accessible to customers, and provide summaries or key points for customers to grasp essential information quickly. Involving legal experts, compliance teams, and conducting user testing can also help identify and rectify potential issues with the terms and conditions of use before launching the financial product (Duray, 2021).

2.1.4 Affordability

According to Buch (2020), factors such as costs, margins, and customer demand are considered during the pricing decision-making process. Indeed, designing a financial product for the African market in general and Rwanda in particular comes with its own set of challenges, particularly when it comes to costs and pricing. Many countries in Africa have relatively low average incomes, and a significant portion of the population lives below the poverty line. This means that pricing financial products at levels affordable to the majority while still being financially viable for the institution can be difficult (Kakooza, 2022). Carpena and Zia (2022) stated that a large segment of the African population remains unbanked or underbanked. High costs or fees associated with financial products can act as a barrier to entry, preventing many individuals from accessing formal financial services.

To address these problematic areas, financial institutions and product designers need to: conduct thorough market research to understand the specific needs and financial realities of the target market, develop innovative solutions to reduce operational costs and make financial products more affordable, collaborate with local partners to leverage existing networks and infrastructure (Kakooza, 2022), invest in financial education and literacy programs to empower customers to make informed decisions, work closely with regulators to ensure compliance with local laws and regulations (Rwanyindo, 2021), or consider adopting technology and digital solutions to reduce costs and reach more customers (Berhanu, *et al.*, 2021). By carefully considering the challenges and opportunities presented by the African market, financial institutions can design products that are both financially viable and inclusive, addressing the needs of the underserved population while sustaining their own operations.

2.1.5 Product Features

Designing a financial product that is sensitive to gender bias is crucial, particulary in Africa, where gender inequalities persist in various aspects of life, including access to financial services. Women in Africa often face barriers in accessing formal financial services compared to men. They are more likely to be excluded from the formal banking system, limiting their opportunities to save, invest, and access credit (Berhanu, *et al.*, 2021). Women in rural and marginalized communities, in particular, encounter significant challenges in accessing financial products and services due to societal norms and cultural barriers. Women have limited ownership and control over assets, such as land and property, which can impact their ability to use these assets as collateral for financial products (Kakooza, 2022).

Several authors found various challenges for women in Africa to benefit from various financial products. We may cite lack of financial education (Beck & Honohan, 2022)., gender pay gap, gender norms and cultural practices (Ntuite, 2020)., no access to digital devices (Rwanyindo, 2021), and even security and safety concerns (Duray, 2021). Female entrepreneurs may face additional hurdles in accessing financing to start or grow businesses due to gender bias and discrimination. Therefore, financial products may be designed and marketed in ways that unintentionally exclude or target specific genders, reinforcing gender stereotypes. To address gender bias in the design of financial products in Africa, financial institutions and product designers should collect data that differentiates between male and female customers to better understand gender-specific needs and preferences, design products that target and address the specific financial needs of women, particularly those in marginalized communities, offer financial literacy programs tailored to women's needs, empowering them to make informed financial decisions, create flexible financial products that cater to the diverse economic activities and roles of women in society (Berhanu, *et al.,* 2021)..

Financial institutions may also have to avoid reinforcing gender stereotypes in product marketing and instead promote gender-neutral messaging, to partner with organizations that focus on women's empowerment and gender equality to enhance outreach and support (Ntuite, 2020)., and tailor product design to respect local cultural norms and practices while promoting gender equality (Kakooza, 2022),. They may also offer tailored financing solutions and support to female entrepreneurs, helping them overcome gender-specific challenges such as group liabilities. Group liabilities for females in contracted loans refer to the shared responsibility and obligations that a group of female borrowers assume collectively when taking out a loan. These loans are often known as "group loans" or "joint liability loans." In such loan arrangements, a group of individuals, typically women, come together as co-borrowers to access credit from a financial institution or a microfinance institution (Berhanu, *et al.,* 2021). By addressing gender bias and promoting gender equality in financial product design, financial institutions can contribute to more inclusive economic growth and improve the overall financial well-being of women. Additionally, these efforts can have broader positive impacts on families, communities, and societies as a whole.

Therefore, before launching a new financial product, financial institutions often conduct testing and pilot programs to assess its performance and gather feedback. This helps identify any potential issues or areas for improvement before a full-scale rollout (Beck & Honohan, 2022). And once the financial product design is finalized, the institution launches and markets it to the target audience. Effective marketing strategies are employed to generate awareness, attract customers, and drive adoption (Carpena & Zia, 2022). After a financial product is launched, continuous monitoring and evaluation are essential to track its performance, assess customer satisfaction, and identify opportunities for enhancements or modifications (Buch, 2020).

2.1.6 Financial Literacy

Financial literacy refers to the knowledge, skills, and understanding of financial concepts and principles that enable individuals to make informed and effective decisions regarding their personal finances. It involves having the ability to manage money effectively, make sound financial choices, and navigate various financial products and services (Morshadul, Thi & Ariful, 2023). Okello, Mpeera and Akol (2020) referred to financial literacy as the ability to understand and apply different financial skills effectively, including personal financial management, budgeting, and saving. The authors added that financial literacy makes individuals become self-sufficient, so that financial stability can be accomplished.

2.1.7 Financial decision making

Financial Decision-Making is the ability to make informed decisions about spending, saving, investing, and financial goals (Buch, 2020). Financial literacy is the experience of financial principles and concepts, such as financial planning, compound interest, debt management, efficient investment strategies, and money-time value. Financial illiteracy can lead to poor financial choices which can have negative effects on an individual's financial well-being. The key steps to improve financial literacy include learning the skills to create a budget ability to track expenses, learning the strategies to pay off debt, planning for retirement effectively. Such measures can also include financial specialist counselling.

Educating about finances involves understanding how money works, developing and achieving financial goals, and handling internal and external financial challenges (Buch, 2020). Financial literacy refers to the ability to understand and apply different financial skills effectively, including personal financial management, budgeting, and saving. Financial literacy makes individuals become self-sufficient, so that financial stability can be accomplished (Calderone & Sarr, 2020).

Miller (2020) stated that financial literacy encompasses understanding fundamental financial concepts such as budgeting, saving, investing, borrowing, interest rates, inflation, taxes, and insurance. It involves knowing how these concepts work and how they impact personal financial decisions. Paige (2022) stated that it includes skills related to managing money effectively. This includes creating and sticking to a budget, tracking expenses, setting financial goals, saving for emergencies, and planning for long-term financial objectives such as retirement or education.

Lubasi (2020) asserted that financially literate individuals are capable of making informed decisions about their money as they can evaluate different options, consider the potential risks and rewards, and choose the most suitable financial products or services for their needs. This includes decisions related to investments, loans, mortgages, insurance, and retirement planning. Beck and Honohan (2022) found that financially literate individuals can make informed decisions regarding borrowing and avoid excessive debt burdens.

2.1.8. Risk Management

Risk Management implies understanding insurance products and how they protect against financial risks, including health insurance, life insurance, and property insurance (Buch, 2020). Financial literacy includes being aware of consumer rights and responsibilities when dealing with financial institutions, products, and services according to Kakooza (2022). The author stated that this involves understanding terms and conditions, fees and charges, contractual obligations, and being able to compare different options to make informed choices as a consumer. Buch (2020) argued also that financially literate individuals can develop and implement a financial plan that aligns with their short-term and long-term goals. While Carpena and Zia (2022) stated that financial literacy encompasses understanding and managing financial risks. This involves knowledge of insurance, understanding the importance of diversification in investments, and being able to assess and manage risks associated with different financial decisions.

Allen and Martinez (2022) state that being financially literate includes understanding the importance of saving and planning for retirement which may involve knowledge of retirement accounts, investment options, and strategies to ensure a secure financial future. Therefore, one can state that promoting financial literacy is important as it empowers individuals to make informed decisions, avoid financial pitfalls, and achieve financial well-being. It can lead to better financial outcomes, reduced financial stress, and improved overall financial health for individuals and communities.

2.1.9. Financial Inclusion

Financial inclusion refers to the accessibility and availability of financial services to individuals and communities, especially those who have been traditionally underserved or excluded from the formal financial system (Banerjee *et al.* 2020). It aims to ensure that everyone, regardless of their income level, gender, age, or geographical location, has access to affordable and appropriate financial products and services. Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance, delivered in a responsible and sustainable way (Abarcar, *et al.*, 2020).

2.1.10 Access to banking services

At its core, financial inclusion ensures that everyone has access to basic banking services. This includes the ability to open a savings or checking account, make deposits and withdrawals, and conduct financial transactions. It implies also that individuals and businesses have access to credit facilities, allowing them to borrow money for investments, emergencies, or other needs. This is particularly important for entrepreneurs and small businesses (Miller, 2020).

Financial inclusion refers to efforts to make financial products and services accessible and affordable to all individuals and businesses, regardless of their personal net worth or company size including financial products and services that meet their needs transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way, etc. Financial inclusion strives to remove the barriers that exclude people from participating in the financial sector and using these services to improve their lives, it is also called inclusive finance. Financial inclusion is an effort to make everyday financial services available to more of the world's population at reasonable cost in general (Miller, 2020).

Financial inclusion strives to remove the barriers that exclude people from participating in the financial sector and using these services to improve their lives. It is also called inclusive finance in general (Marchetti & Zia, 2021).

2.1.11 Convenience

Access should be convenient for individuals, whether through traditional brick-and-mortar banks, mobile banking apps, or other accessible channels. Financial inclusion encompasses a wide range of services, including basic banking services (such as savings accounts, payment services, and credit), insurance products, pensions, and investment opportunities, and the goal is to provide individuals with the tools and resources they need to manage their finances, save money, make payments, access credit, and protect themselves against financial shocks (Aron, 2020).

Abarcar, *et al.* (2020) asserted that by promoting financial inclusion, governments, policymakers, and organizations seek to address economic inequality, poverty, and social exclusion. It recognizes that access to financial services is not only a matter of convenience but also a crucial factor in reducing poverty, fostering economic growth, and promoting social development. The authors concluded that financially inclusive systems can empower individuals, households, and small businesses, enabling them to participate in economic activities, make informed financial decisions, and build a more secure future.

2.1.12 Social Impact

Financial inclusion can lead to positive social impacts, such as increased access to healthcare and education and improved living standards. Arcand, *et al*. (2021) argued that financial technology (fintech) and digital innovations have played a significant role in advancing financial inclusion in recent years. Mobile banking, digital payment systems, and other technological solutions have expanded access to financial services, particularly in underserved areas where physical infrastructure is limited. These innovations have made it easier for individuals to conduct financial transactions, save money, access credit, and manage their finances using their mobile devices. Buch (2020) stated that financial inclusion is an essential component of inclusive economic growth and sustainable development, as it helps to create opportunities, reduce poverty, and build more resilient and equitable societies.

2.1.13. Financial Product Design and Financial Inclusion

For its part, the financial industry is continually coming up with new ways to provide products and services to the global population, and often turn a profit in the process. The impact of financial product design on financial inclusion in microfinance is significant. Morshadul, Thi and Ariful (2023) argue that well-designed financial products can play a crucial role in expanding access to financial services, improving the financial capabilities of underserved populations, and promoting overall financial inclusion. The authors suggested that financial product design can focus on creating products that are accessible to a wide range of individuals, including those in remote or underserved areas. This involves considering factors such as affordability, ease of use, and proximity to financial service providers.

Designing products that are available through multiple channels, including digital platforms and mobile technology, can also enhance accessibility and reach (Simkovic, 2021). According to Paige (2022), by offering products that meet their needs, such as small loans for income-generating activities or flexible repayment options, microfinance institutions can foster financial inclusion and empower individuals to improve their financial well-being. Mutty (2022) stated that the affordability of financial products is a critical factor in promoting financial inclusion because designing products with reasonable fees, interest rates, and charges ensures that they are accessible to individuals with limited financial resources. The author added that microfinance institutions can also explore innovative pricing models, such as flexible interest rates or fee structures, to make products more affordable and inclusive.

Miller (2020) argued that complex financial products can be daunting for individuals with limited financial literacy or familiarity with formal financial systems. Therefore, designing products that are simple, transparent, and easily understandable is essential. Mbaaga (2022) stated that microfinance institutions can provide educational materials, tools, and resources alongside their products to enhance the financial literacy and skills of their clients. This empowers individuals to make informed financial decisions, utilize financial products effectively, and improve their financial well-being over the long term. While Lubasi (2020) asserted that understanding the needs, behaviors, and aspirations of clients allows for the development of products that are responsive to their requirements and preferences.

Customer feedback mechanisms, user testing, and continuous product iteration contribute to designing products that better meet the needs of underserved populations. Therefore, by ensuring a better tailored financial product design, microfinance institutions can foster greater financial inclusion, reduce barriers to access, improve financial capabilities, and empower individuals and businesses to participate fully in the formal financial system. It enables underserved populations to access essential financial services, build assets, manage risks, and improve their economic prospects.

In Kenya, Okello *et al* (2022) sought to establish the effect of microfinance banking on financial inclusion in Kenya. Social capital, Financial Intermediation and the Modern Development theories have been reviewed in the literature review. For the empirical review, various studies have been reviewed as well. The determinants of the financial inclusion are group lending, individual lending, village banking and savings mobilization. One of the measures of financial inclusion used in the study is the number of bank accounts. The study used the descriptive research methodology and the target population was all the Microfinance Institutions that are registered with the Association of Microfinance Institutions. Data collection was done by the use of both the structured and unstructured questionnaires, while the analysis of date was done by the use of descriptive statistical tools and a multivariate regression analysis model. From the data analysis, it was concluded that the availability of micro banking products, facilities and a strong branch network are one of the factors that enhance financial inclusion.

H1: *There is a significant effect of financial product design on financial inclusion in Goshen Finance Plc*

2.1.14. Financial Literacy and Financial Inclusion

A systematic review of previous authors revealed that financial literacy has a significant effect on financial inclusion in microfinances as it plays a crucial role in empowering individuals to make informed financial decisions, effectively access and utilize financial services, and improve their overall financial well-being. Mbaaga (2022) found that financial literacy enhances individuals' awareness and knowledge about financial products, services, and the formal financial system. And by being aware of available financial options, individuals are more likely to seek out and engage with microfinance institutions and their services. Paige (2022) also asserted that when individuals have a better understanding of how financial products work, the associated costs, risks, and benefits, they are more likely to trust microfinance institutions and feel confident in utilizing their services. This trust is essential for individuals to engage with formal financial services and participate fully in financial inclusion initiatives.

Financial literacy empowers individuals to make informed financial decisions as it enables them to assess various financial options, compare costs and benefits, and choose the most suitable products and services based on their needs and circumstances (Sampson & Zia, 2021). Individuals with financial literacy understand the importance of budgeting, managing debt, and saving for future needs. They are more likely to use microfinance loans for productive purposes, make timely repayments, and avoid falling into a cycle of over-indebtedness. Similarly, financial literacy encourages regular saving habits, helping individuals build financial resilience and achieve long-term financial stability (Rwanyindo, 2021). Financially literate individuals are more capable of assessing the risks associated with financial decisions, making appropriate risk management strategies, and protecting themselves from potential financial pitfalls (Ntuite, 2020). Financially literate individuals are more likely to engage in income-generating activities, invest wisely, and plan for future needs, leading to increased economic stability and upward mobility (Simkovic, 2021).

Therefore, microfinance institutions can contribute to financial literacy by offering financial education programs, conducting workshops, providing educational materials, and integrating financial literacy components into their product offerings. By promoting financial literacy, microfinance institutions enhance the overall financial inclusion of their clients, fostering their empowerment and economic growth.

In Bangladesh, Morshadul, Thi and Ariful (2023) investigated the impacts of financial knowledge on financial access through banking, microfinance, and fintech access using the Bangladesh rural population data. The study employed three econometrics models: logistic regression, probit regression, and complementary log–log regression to examine whether financial literacy significantly affects removing the barriers that prevent people from participating and using financial services to improve their lives. The empirical findings showed that knowledge regarding various financial services factors had significant impacts on getting financial access. Some variables such as profession, income level, knowledge regarding depositing and withdrawing money, and knowledge regarding interest rate highly affected the overall access to finance. The study’s results provide valuable recommendations for the policymaker to improve financial inclusion in the developing country context. A comprehensive and long-term education program should be delivered broadly to the rural population to make a big stride in financial inclusion, a key driver of poverty reduction and prosperity boosting.

H2: *Financial literacy significantly affects financial inclusion in Goshen Finance Plc.*

2.1.15 Financial Literacy in moderation between Financial Product Design and Financial Inclusion

Several authors have revealed that financial literacy can serve as a mediating factor between financial product design and financial inclusion in microfinance institutions. For example, Okello et al. (2020) stated that microfinance institutions design financial products tailored to the needs of their target clients, such as microloans, micro savings accounts, insurance, or remittance services, and the design of these products takes into account the specific financial requirements, constraints, and preferences of the target population. Therefore, financial literacy would empower individuals to understand the features, benefits, and risks associated with financial products and services.

In the same line, Paige (2022) found that when individuals have a better understanding of financial products, they are more likely to use them appropriately and effectively. Miller (2020) also stated that when individuals are financially literate, they can assess the suitability of products based on their needs and goals. They can compare different options, evaluate the costs and benefits, and make informed decisions about which products to adopt. This increases the likelihood of individuals embracing financial products and services offered by microfinance institutions. Mbaaga (2022) also found that they can leverage features such as savings mechanisms, repayment strategies, or insurance coverage to their advantage. This leads to improved financial outcomes and enhances their overall financial well-being.

High-net-worth individuals often have access to sophisticated wealth management services tailored to their needs. However, these services may not be accessible or affordable for individuals with lower incomes, widening the wealth gap (Buch, 2020). Also, while digital financial services have the potential to promote financial inclusion, overly complex user interfaces and digital platforms can be challenging for individuals with limited digital literacy, hindering their adoption. Some financial products, such as certain investment accounts or premium banking services, may require high minimum balances, making them unattainable for individuals with lower incomes (Beck & Honohan, 2022). Complex credit assessment processes, strict collateral requirements, and extensive paperwork can deter individuals with limited credit histories from accessing loans, limiting their financial inclusion (Murwanashyaka & Rusibana, 2020). Such refusals to use financial services can be reduced by improving financial literacy, so that these individuals better understand the advantages of financial services but also feel more confident to contact providers.

By mediating the relationship between financial product design and financial inclusion, financial literacy contributes to sustainable inclusion according to Kotlikoff (2020). The author argues that when individuals have a solid foundation of financial knowledge, they are more likely to make informed decisions, avoid pitfalls, and maintain long-term engagement with financial services. This sustainable usage of financial products and services supports their financial inclusion and positively impacts their economic empowerment (Kotlikoff, 2020). In summary, financial literacy acts as a mediating factor between financial product design and financial inclusion in microfinance institutions by enhancing product understanding, adoption, usage, and sustainable inclusion. Paige (2022) suggested that by promoting financial literacy initiatives alongside well-designed financial products, microfinance institutions can enhance the effectiveness and impact of their efforts to foster financial inclusion.

Murwanashyaka and Rusibana (2020) examined the effect of financial inclusion policy on saving in Microfinance Institutions in Rwanda. The specific objectives were to analyse the effect of bank account on saving for beneficiaries of COPEDU Plc; to determine the extent to which the bank location (distance between client and financial service provider) influences the savings of beneficiaries in COPEDU Plc; to analyse the effect of financial literacy on saving of beneficiaries of COPEDU Plc; and to determine the relationship between financial inclusion policy and saving in MFIs in Rwanda. Target population was 2, 871 beneficiaries of COPEDU Plc; and the study applied stratified random sampling technique to select 107 respondents (97 respondents from target population and 10 staffs from COPEDU Plc). Findings showed that ownership of bank account have positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFIs in Rwanda ($\beta 1 = 0.071$, $t=.707$; p - value=.481 less than 5%). The Findings showed that bank location (distance between client and financial service provider) has positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFI in Rwanda ($\beta 2=.521$, $t= 4.760$ and p - value=.000 less than 5%). Findings showed that financial literacy has positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFIs in Rwanda ($\beta 3=.007$, $t=.077$ and p - value=.939 greater than 5%). Based on findings, we conclude that there is positive relationship between financial inclusion policy and saving in Microfinance institutions in Rwanda.

H3*: Financial literacy has a significant moderating effect between financial product design and financial inclusion in Goshen Finance Plc.*

2.2. Theoretical Review

2.2.1. Social Learning Theory

Social Learning Theory was developed by psychologist Albert Bandura in the mid-20th century. Bandura first introduced the theory in the early 1960s and continued to refine and expand upon it in subsequent years. His seminal work on Social Learning Theory was published in 1977 in the book "Social Learning Theory." Since then, the theory has had a significant impact on the field of psychology and has been widely studied and applied in various domains, including education, behavior therapy, and social psychology. This theory is a psychological theory that emphasizes the role of observational learning, imitation, and modeling in shaping human behavior. The theory proposes that individuals learn by observing others, including their behaviors, attitudes, and the consequences of their actions (Duray, 2021).

Social Learning Theory posits that people learn by observing others. Individuals acquire new knowledge, skills, and behaviors by watching the actions and experiences of others. This learning process involves attention, retention, reproduction, and motivation. Imitation is a crucial aspect of Social Learning Theory. Individuals are more likely to imitate behaviors that they observe being reinforced or rewarded. The theory suggests that people selectively imitate models they perceive as similar, attractive, or possessing desirable qualities. Models can be real people, characters in media, or symbolic representations (Kotlikoff, 2020).

The theory was supported by Rwanyindo (2021) as she posits that social Learning Theory highlights the importance of social influence, observation, and modeling in learning and shaping behavior. It emphasizes that individuals learn not only through direct experience but also by observing and imitating others. The theory has implications for various fields, including education, psychology, and social sciences, and has been influential in understanding how behavior is acquired, maintained, and modified.

Some of the main criticisms of the theory include Kotlikoff (2020) who argued that Social Learning Theory places less emphasis on individual agency and self-determination. The author contends that the theory does not adequately address the active role individuals play in shaping their own behavior and making choices, potentially overlooking the influence of personal autonomy and volition. Also Buch (2020) argues that the findings and principles derived from Social Learning Theory may have limited generalizability across diverse populations and contexts. They argue that the theory may be more applicable to certain cultural or demographic groups and may not adequately capture the complexity of behavior in different societies and contexts.

However, this theory supports this study as in understanding the role of social influence, observational learning, and modeling in shaping financial behaviors and promoting financial inclusion, MFIs can design better product design in order to attract more customers.

2.2.2 Prospect Theory

Prospect Theory, developed by y Daniel Kahneman and Amos Tversky in 1979, examines how individuals make decisions under uncertainty and risk. It suggests that individuals evaluate potential gains and losses relative to a reference point and exhibit biases in their decision-making. Understanding prospect theory can help designers create financial products that address individuals' risk perceptions, framing effects, and loss aversion (Kakooza, 2022)

Prospect Theory has garnered extensive empirical support through experiments and observations across various decision-making contexts. Prospect Theory has had a profound impact on the field of behavioral economics and has challenged traditional economic assumptions of rationality. It has paved the way for understanding the complexities of human decision-making and incorporating psychological factors into economic models (Kotlikoff, 2020).

However, some critics argue that Prospect Theory's value function is not consistently observed in all decision-making situations. The context and framing of the decision can impact whether individuals exhibit the predicted patterns of behavior (Marchetti & Zia, 2021). Also critics suggest that Prospect Theory's focus on individual decision-making may have limited predictive power when applied to aggregate economic phenomena or market behaviors. They argue that other factors, such as market forces and institutional constraints, may play significant roles that are not accounted for in the theory (Jerry, 2022).

We used this theory to support this study because by considering the risk perceptions of users, MFIs can design financial products that address and mitigate potential aversion to losses, ensuring that the product features and communication strategies align with users' risk preferences.

2.2.3. Theory of Empowerment

According to Zimmerman's (2000) empowerment theory, interventions should be utilized to nudge the community in the direction of a sense of control. Communities may feel helpless in their daily lives for a variety of reasons. So, the focus of empowerment theory is on how tyranny influences this experience and how the community may prevent it. It focuses on assisting marginalized people in acquiring the personal, interpersonal, economic, and political power they require in order to better their lives on an individual, collective, and communal basis. The empowerment concept essentially opposes structures that restrict or make it difficult for people to achieve their basic requirements (Perkins & Zimmerman, 1995).

In order to transform people's perceptions and attitudes and inspire them to take action against the challenges in their homes and communities, capacity building requires the involvement of external bodies or agents. It is believed that empowerment is a lifelong process of growth that includes self-determination as one makes choices that can enhance one's personal and the community's well-being (Kabeer and Mosedale, 2005).

2.4. Review of Related Studies

In Bangladesh, Morshadul, Thi and Ariful (2023) investigated the impacts of financial knowledge on financial access through banking, microfinance, and fintech access using the Bangladesh rural population data. The study employed three econometrics models: logistic regression, probit regression, and complementary log–log regression to examine whether financial literacy significantly affects removing the barriers that prevent people from participating and using financial services to improve their lives. The empirical findings showed that knowledge regarding various financial services factors had significant impacts on getting financial access. Some variables such as profession, income level, knowledge regarding depositing and withdrawing money, and knowledge regarding interest rate highly affected the overall access to finance. The study's results provide valuable recommendations for the policymaker to improve financial inclusion in the developing country context. A comprehensive and long-term education program should be delivered broadly to the rural population to make a big stride in financial inclusion, a key driver of poverty reduction and prosperity boosting.

In Kenya, Okello *et al* (2022) sought to establish the effect of microfinance banking on financial inclusion in Kenya. Social capital, Financial Intermediation and the Modern Development theories have been reviewed in the literature review. For the empirical review, various studies have been reviewed as well. The determinants of the financial inclusion are group lending, individual lending, village banking and savings mobilization. One of the measures of financial inclusion used in the study is the number of bank accounts. The study used the descriptive research methodology and the target population was all the Microfinance Institutions that are registered with the Association of Microfinance Institutions. Data collection was done by the use of both the structured and unstructured questionnaires, while the analysis of date was done by the use of descriptive statistical tools and a multivariate regression analysis model. From the data analysis, it was concluded that the availability of micro banking products, facilities and a strong branch network are one of the factors that enhance financial inclusion.

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The Findings showed that bank location (distance between client and financial service provider) has positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFI in Rwanda ($\beta 2$=.521, t= 4.760 and p - value=.000 less than 5%). Findings showed that financial literacy has positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFIs in Rwanda ($\beta 3$=.007, t=.077 and p - value=.939 greater than 5%). Based on findings, we conclude that there is positive relationship between financial inclusion policy and saving in Microfinance institutions in Rwanda.

2.5. Conceptual Framework

This section has three sections including financial product design as independent variable; financial literacy as moderating variable and financial inclusion as dependent variable:

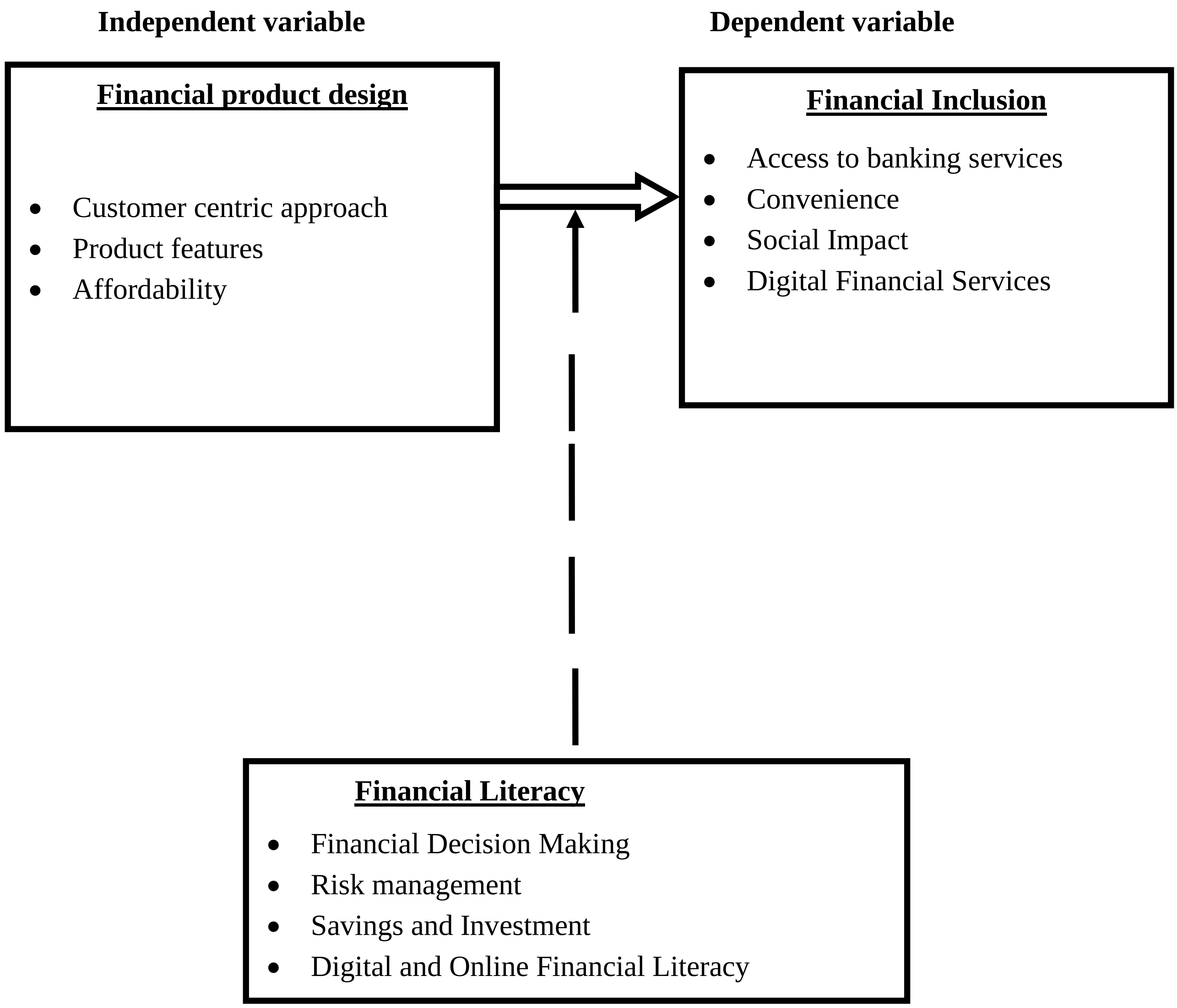

Figure 2. 1 : Conceptual Framework

Source: Researcher (2023)

2.6. Summary

Researcher consulted the related studies in order to identify the gaps as well as the financial product design and financial inclusion relationship are a set of standards for an organization's operations that socially conscious investors use to screen potential investments. Environmental relationship considers how an organization performs as steward of financial nature. Financial relationship examines how it manages relationships with financial institutions and beneficiaries. Governance deals with an organization's financial product design, executive pay, audits, internal controls, and shareholder rights. The relationship can also be used in evaluating any environmental risks an organization might face and how the organization is managing those risks.

Therefore, it is from that biased gap where current researcher was motivated to do this research in order to detect and solve that research gap, the researcher observed that it is needed to control the criteria for financial product design and financial literacy as essential for ensuring that the needed services that will meet the requirements and needs for financial inclusion. Therefore, the findings of this research will solve the gap and provide recommendations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter deals with the methodology and approaches to be used in conducting this research and the techniques that was used in this study. This chapter presents the research design, study population, sample size, sampling techniques, and data collection.

3.2. Research design

Saunder (2016) defined research design as the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. This study adopted the experimental research design in order to attain its objectives. Experimental research is considered the gold standard for investigating causal relationships because it allows researchers to manipulate one or more independent variables while controlling for other factors that might influence the outcomes (dependent variables) as provided by Cresswell and Cresswell (2018). The authors explain that, by randomly assigning participants to different experimental conditions, researchers can infer causality with a higher degree of confidence.

Therefore, the experimental research design was used in this study with the primary goal of gathering the perceptions of respondents on the financial product design and financial inclusion, with financial literacy as moderating variable, in Goshen Finance Plc. The perceptions of respondents were analyzed using frequencies, mean, standard deviation by using quantitative data. While the correlation analysis was utilized to evaluate the relationship between the study's variables, and multiple regression used to test hypotheses of the study.

3.3. Population of the Study

The choice of the research population is a crucial decision in any scientific investigation. In this study, the population was defined as the entire customer base of Goshen Finance Plc at the Headquarter branch, which amounted to 9,874 customers as of June 2023. The decision to focus on this specific population was driven by the research objective, which aimed to assess the effect of financial product design and financial literacy on financial inclusion by microfinance institutions within this particular context. While collecting data from the entire population might have been ideal in terms of representativeness, it was both logistically challenging and costly. To address these practical constraints, inclusion and exclusion criteria were established, aimed at selecting participants who would provide valuable insights aligned with the research objectives.

The inclusion criteria, which required participants to have taken out at least two loans and either paid them back in full or still be in the process of repayment, were set to ensure the selection of individuals who had a substantial engagement with the microfinance institution's services. Conversely, the exclusion criteria were put in place to filter out participants with less meaningful engagement with the institution. As a result, the population was narrowed down to 623 customers who met the established criteria. This subset was considered representative of the broader population for the purposes of this study, allowing for the collection of reliable data that aligns with the research objectives without the logistical challenges associated with studying the entire population. This approach ultimately enables the study to maintain a balance between cost-effectiveness and the research's overall objectives.

3.4. Sample size of the study

Sample size is the number of people drawn at random from the entire population to be studied (Saunders *et al*, 2014). Richey and Klein (2014) define sampling as the process of choosing a small sample of respondents to represent the population, which is then assumed to reflect the bulk of the population under investigation. Resource and statistical considerations are involved in determining sample sizes. The population of the current study is as large as information from the management of the Goshen Finance Plc/Headquarte, which shows that 623 customers have taken out two or more loans and paid them back.

Given the size of the population, a sample was chosen for this study using the Wayne (2014) formula, as illustrated below:

$$n = \frac{(N * Z^2) + (1 - q)}{(N + 1) * e^2}$$

Where:

N=623: study population

e = Maximum error allowed: 0.1 (because the study population is large)

Z=Factor of confidence: 1.96

p= Favorable ratio: 0.50

q= 1-q=Unfavorable ratio: 0.50

$$n = \frac{623 * 1.96^2 * 1 - 0.50}{(623 + 1) * 0.10^2}$$

$$= \frac{1025.7072}{6.34}$$

$n = 161.7$

n= **162** customers of Goshen Finance Plc/Headquarter branch

Therefore, for the case of this study, the sample size was 162 customers within Goshen Finance Plc, who were selected through simple random sampling technique for collecting the information (data).

3.2.3 Sampling Technique

Sampling Technique is a sampling technique where every item in the population has an even chance and likelihood of being selected in the sample. Here the selection of items completely depends on chance or by probability and therefore this sampling technique is also sometimes known as a method of chances (Bailey, 2010). The researcher used simple random sampling technique which is a non-probability sampling technique in which each member within the population study has equal chance of being sampled for the study.

3.3 Data Collection Techniques and Tools

The study employed questionnaires and undertake desk research on available documentation for data collection. Desk research were based on reports that are available in public libraries, websites that may be used for this research purpose.

3.3.1 Questionnaire

The researcher distributed self-structured questionnaires to respondents selected for the study. It was administered to sampled respondents over a period of three weeks. The self-structured questionnaire was based on Liker scale which is a rating scale that requires the subject selected for the study to indicate his/her level of agreement or disagreement with a given statement (Kothari & Garg, 2014). The equivalent weight for the answers provided by respondents were measured as follows:

Strongly Disagree, 2. Disagree, 3. Neutral, 4. Agree, and 5.Strongly Agree.

Table 3. 1: Interpretation of Scale

Scale	Interpretations
1	Strongly Disagree (SD)
2	Disagree (D)
3	Neutral (N)
4	Agree (A)
5	Strongly Agree (SA)

Source: Saunder (2016)

There are several sections based on the research objectives: Demographic questions in Section A include those pertaining to gender, age, education, and work experience. Research objective one are in Section B, research objective 2 is in section C, and research objective 3 are in section D. There were ten statements for each of the research specific objective, and these all come from various earlier papers where they were applied and empirically supported. Each of the participants who were sampled for the study got a questionnaire. The researcher distributed the questionnaire to respondents over the period of three weeks due to the size of the population

Secondary data sources were the foundation for which the theoretical and conceptual framework of the research was built. Relevant literature from related case existing studies, books, government related institutions reports, websites, and private institutions were contacted for reports; different libraries from different high learning institutions such as Kigali Independent University were used to provide the review of the literature and giving the needed information concerning the topic under study in order to make this study meaningful.

3.4. Pilot Study

In order to gauge how well each of the statements in the questionnaire is understood, a pilot research was carried out. This made it easier to assess if the statements' intended meanings as expressed in each construct are correctly communicated. The purpose of a pilot study was to lessen the possibility of making research mistakes when formulating the construct of the questionnaire.

The pilot research was carried in Unguka Bank. The researcher anticipated that by giving out copies of the questionnaire to nearly 10 customers in Unguka Bank, he would be able to determine whether the study tool is adequate. Additionally, it made it easier to evaluate if a full-scale study is possible in the future. The researcher edited and changed the questionnaire's statements that were not clear, while some of them were reworded, especially those that were not correctly responded by the respondents as expected, based on the pilot study and the instrument appraisal.

3.5. Validity and Reliability of the Research Instrument

Several professionals in the field of finance validated the research tool. The study's supervisor, and the manager of Unguka Bank, make up the panel of experts. The researcher also used confirmatory factor analysis (CFA) to build validity and calculated the correlation between the primary construct and the components. Were used if Average Variance Extracted (AVE) > 0.5.

Table 3. 1 Validity Test

S/N	Variables	Number of items	Average Variance Extracted
1	Financial Product Design	10	0.735
2	Financial Literacy	10	0.711
3	Financial Inclusion	10	0.766

Source: Researcher's Pilot Study (2023)

The reliability of the instrument was also evaluated in this study, using the Cronbach's Alpha coefficient, which illustrates the correlation between each item. Cronbach's Alpha groups the instrument's questions into potential groups before calculating correlation coefficients for each group. A computer algorithm handled this part, and the result was a single Cronbach's Alphas value that must be more than 0.7. This number is more than 0.7 when the research instrument is very reliable and the scale's items have a higher level of internal consistency.

Table 3. 2 Reliability Test

S/N	Variables	Number of items	Cronbach's Alpha(α)
1	Financial Product Design	10	0.681
2	Financial Literacy	10	0.577
3	Financial Inclusion	10	0.706

Source: Researcher's Pilot Study (2023)

3.6. Methods of Data Analysis

In the area of statistical methods, one can find original, excellent papers that emphasize many facets of contemporary statistical theory as well as noteworthy applications. This thesis aimed to promote collaboration between statisticians and scientists from other fields who are interested in statistical methods generally. The data was evaluated using descriptive and inferential statistics, such as correlation and multiple regression analysis, as part of the research analysis process. The data in this study were computed and analyzed using the data analysis software statistics product and service solution (SPSS) version 27.

3.6.1. Descriptive statistics

Descriptive statistics like mean, frequency, and coefficient of variations were used to characterize Financial Product Design and Financial Inclusion.

3.6.2. Mean (M)

Mean the best known and frequently used measure of the center of distribution of a quantitative variable is well known as a mean. The mean refers to "averaging", adding up the data points and dividing by how many there are, Mean: is the average value calculated by adding up the values of each case for a variable and dividing by the total number of cases (Lohrey, 2014) and the formula is:

$$\overline{X} = \frac{1}{n}\sum_{i=1}^{n} xi$$

Table 3. 3 Interpretation of Mean

Interval	Level	Interpretation
1.00-1.99	No extent	The fact does not appear
2.00-2.99	Small extent	The fact appear less
3.00-3.99	Great extent	The fact appears more
4.00-5.00	Very great extent	Strong evidence of the existence of the fact

Source: Saunder (2012)

3.6.3. Standard Deviation (σ)

The standard deviation is a number that represents the degree of data variability. It represents how near the data is to the mean. It informs the researcher about the distribution of the data. (Aggreseti, 2013). S is typical distance from the mean, larger values of S represent greater spread, if S = 0 means that all observations take the same value. The formula of standard deviation is:

$$(S) = \sqrt{S^2}$$

Where, $$S^2 = \frac{1}{n-1}\sum_{i=1}^{n}(xi - \overline{X})^2$$

Homogeneity refers to objects or people that have comparable features or are all of the same kind, whereas heterogeneity refers to things or people who have few or no similar traits.

Table 3. 4 Standard Deviation

Standard Deviation	Level spreading
$\sigma<0.50$	Homogeneity
$\sigma>0.50$	Heterogeneity

Source: Saunder (2012)

3.6.4. Pearson Correlation

The statistical relationship between trade credit and investment performance for export-oriented companies was measured extremely well using the Pearson correlation coefficient. The goal of the correlation study was to determine the strength and proximity of the variables. The rules for interpreting the correlation coefficient are as follows.

Table 3. 5 Evaluation of Correlation

Correlation coefficient	**interpretation**
r=1	Perfect linear correlation
0.9<r<1	Positive high strong correlation
0.7<r< 0.9	Positive strong correlation
0.5<r<0.7	Positive moderate correlation
0<r<0.5	Weak correlation
r=0	No, relationship

Source: Saunder (2012)

3.6.5. Multiple Linear Regressions

The effects of numerous predictor variables (rather than just one) on the dependent measure are assessed using multiple regression analysis. Use linear regression to calculate the mean change in a dependent variable given a one-unit change in each independent variable. When the independent variable is another variable that could be categorical, continuous, or ordinal, and the dependent variable is continuous (ratio or interval data), OLS is used. After testing the study hypotheses, including linear relationship, multivariate normality, no or little multicollinearity, multiple linear regression analysis can be done because the dependent variable in this study is ratio data rather than ordinal data (Likert scale of five responses).

Multiple regression models was used to analyze the significance of the influence of the independent factors on the dependent variables, and the moderating variable. Based on previous models that have been used to assess the impact of each predictor, the current study will use the model that is described below.

Model specification

Formula for Multiple Linear Regression:

$Y=\beta_0+\beta_1X_1 +\beta_2 X_2 +\beta_3 X_3 +\mathcal{E}$:

Where

$\beta0$= Constant,

$\beta1$-$\beta4$=regression coefficients,

ε= error term.

X = Independent Variable (Financial product design)

Y = Dependent variables (financial inclusion)

β_0 = Constant coefficient

$X1_=$ Financial product design (FPD),

$X2_=$ financial literacy (FL)

$X3_=$ financial Product design * Financial literacy

Model Evaluation

To assess the applicability of each model, pre-estimation tests will be conducted. This was required since, before any estimating is done, it reveal whether there have been changes made to the variables that make up the models. In order to assess the best estimating method for every model, post-estimation tests is performed.

Multicollinearity: is an undesirable situation caused by high correlations between the independent variables (Corbin *et al.,* 2014). The study made use of variance inflation factors and tolerance values to check for multicollinearity consistency (VIF). The tabulated data was compared to t-statistics, z-statistics, and F-statistics with probability values at 1 percent, 5 percent, and 10 percent levels. If two or more variables have a Variance Inflation Factor (VIF) of five or greater, then one of them needs to be eliminated from the regression analysis.

A Priori Expectation: Independent variables are predicted to have a significant impact on each dependent variable as the expected outcomes or a priori expectation for the built-in econometric models. Each econometric model experience a favorable effect of this kind. The independent financial product design sub variables typically have a considerable and favorable impact on each of the dependent variable financial inclusion.

3.7. Ethical Consideration

The researcher used the utmost caution when distributing the data collection tools to the respondents in order to safeguard their rights and privacy. This research project considered three ethical principles: informed consent, voluntary participation, and privacy/anonymity. The study of these concerns satisfied the following.

The researcher gave informed consent after being made aware of any ethical issues. This was achieved by the researcher requesting permission from both the selected companies and ULK in order to conduct the research. Before starting, the research seek approval from the management of Goshen Finance Plc, where it was conducted.

When creating the questionnaire before the study begins, care was taken to avoid requesting the respondents' sensitive or offensive personal information. The researcher made appointments in advance to avoid offending the respondents. The researcher explained in deep to the respondents comprehend the benefits and challenges of participation by describing the nature and objective of the study and the fact that they would not get any financial incentives for doing so.

The researcher ensured that respondents' information was handled professionally and in confidence. The respondents' anonymity was preserved for the study's aims by coding them rather than reflecting the names that were utilized.

Confidentiality laws were followed in order to protect study participants' privacy. The researcher respected the respondent's privacy by going to where they like. The researcher correctly attributed the authors who were used in this study and the person who created the standardized exam using citations and references in order to avoid plagiarism.

The researcher obtained informed consent from the respondents before distributing the questionnaire and provided them with the option to withdraw from the study at any point while it was still in progress. No specific research findings were disclosed to or made available to study participants. All study participants had access to the final research report, should they want to do so.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

The chapter contains data analysis, presentation and results interpretation as well as discussion of the findings according to the study objective and aims. The main purpose of this study was to assess the Financial Product Design and Financial Inclusion in Microfinances institutions in Rwanda, with evidence from the Goshen finance Plc (GOSHEN PLC), as the case study. The chapter entails questionnaire response rate, demographic characteristics of respondents, an analysis of study findings, discussion and interpretation. Analysis of data was done using the Statistical Product and Service Solutions (SPSS) version 27.0. This information was grouped based on the research objectives and results then presented through tables and cross tabulations. The size of the sample of this study was composed by 162 customers of GOSHEN PLC.

4.1. Response Rate

The size of the sample of this study was composed by 162 customers of GOSHEN PLC, sampled using convenience sampling technique. Among 162 questionnaires distributed, 117 were returned back and they were effectively filled giving a response rate of 72.2%. The study used both descriptive and inferential statistics such as correlation analysis and multiple linear regression analysis have been used.

Table 4. 6 Response Rate

	N	Percent
Filled Questionnaire	117	72.2
No Response	45	27.8

Researcher (2023)

4.2 Demographic Characteristics of Respondents

The profile of respondents was deemed necessary because the ability of the respondents to give satisfactory information on the study variables greatly depends on their background.

Table 4. 7 Demographic Characteristics of Respondents

Factors	Categories	Frequency	Percentage (%)
Gender	Male	66	56
	Female	51	44
	Total	**117**	**100**
Age Group	18-24	25	21
	25-35	47	40
	36-45	27	23
	46-55	16	14
	Over 55	2	2
	TOTAL	**117**	**100**
Marital Status	Single	36	31
	Married	54	46
	Divorced	11	9
	Widow	16	14
	Total	**117**	**100**
Education level	Primary school	15	13
	Secondary Diploma	35	30
	Bachelor’s degree	44	38
	Master’s degree	20	17
	PHD	3	3
	Total	**117**	**100**
Employment Status	Employed	45	38
	Unemployed	14	12
	Self-employed	37	32
	Student	16	14
	Other	5	4
	Total	**117**	**100**

Experience in MFI	Less than 2 years	11	9
	2-5 years	46	39
	5-10 years	32	27
	Above 10 years	28	24
	Total	**117**	**100**

Source: Primary Data (2023)

As table 4.1 shows, during this research, the respondents were both gender, male and female, within respondents whereas 56% were male while 44% were female. This shows that majority of respondents were male, and implies that there are still a way to go within the financial inclusion of women.

Table 4.1 shows that majority 40% of respondents are between the ages of 25-35 years, followed by those aged between 36-45 years counting 23% of the sample size. Then those aged between 18-24 years encountered 21%, followed by those aged between 46-55 years counting 14%, and the least 2% belongs to people agedover 55 years. This implies that GOSHEN PLC has customers from all segment of the population and mature people being majority. Therefore, measures may be taken to increase the number of youth into finance institutions.

Table 4.1 shows that majority 46% of respondents were married, followed by those singles counting 31% of the sample size, then those widows encountered 14%, and the least 9% belongs to people who divorced. This implies that the majority of respondents were married. This may suggest that Rwandans are aware for saving for the future as it is shown that married people are the most within financial services.

From the findings was established that the majority 38% of respondents had bachelor degree. Followed by people holding secondary school diploma per 30%, then those with master's degree counting 17%, then those with primary school meeting 13%, and finally those with PHD degree with 3%. This is an indication that most of the respondents focused in this study had bachelor degree as their highest level of education. This clearly indicated that they have a clue on what is financial product design, financial literacy and how they can affect financial inclusion as they hold academic qualification allowing them to do so.

The study findings show that majority of respondents were employed per 38%, followed by those self-employed per 32%, then students counting 14%, then those unemployed meeting 12%, and finally others with 4%. This is an indication that most of the respondents focused in this study have a job or an employment status, and are aware of the financial product design, financial literacy and how they can affect financial inclusion. Measures has to be taken in order to mobilize people who are not educated to participate more into financial institutions.

From the findings the study established that majority,39%, of respondents had been customer in GOSHEN PLC for a period between 2-5 years, then 27% reported to being clients of the MFI for a period between 5-10 years, then 24% being within GOSHEN PLC for a period between above 10 years, and the remaining 9% provided to have been customer in GOSHEN PLC for less than 2 years. The findings imply that the respondents had been customers long enough in GOSHEN PLC and hence had knowledge about the issues that the researcher was looking for.

4.3 Descriptive Results

The following part presents the findings of the study based on the specific research objectives. The section describes the data using, frequency, percent, mean and standard deviation. High mean indicated that majority of the responded strongly approved the statements presented to them while standard deviation indicated the degree of dispersion from the mean. The mean value is categorized

into very high (4.20- 5.00), high (3.50-4.19), moderate (2.60-3.49), low (1.80-2.59), and very low (1.00-1.79).

The standard deviation below 0.5 was interpreted as indicating homogeneity of answers (which means closeness of answers). The standard deviation above 0.5 indicates heterogeneity.

4.3.1 View on Financial product design in GOSHEN PLC

The study sought to examine the financial product designs including working capital finance, asset finance, credit line, tender facility, performance and bid guaranty, promise of credit line, and overdraft in GOSHEN PLC. The responses from the respondents were logged on a five-point Likert scale anchored by Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5). The respondents were questioned if they agreed or disagreed with the statements and findings are presented in the table 4.2.

Table 4. 8 View on Financial product design in GOSHEN PLC

Statement on Financial product design	**SD**		**D**		**UN**		**A**		**SA**		**M**	**SD**
N=117	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
The products/services offered by the microfinance suits my needs	2	2	5	4	5	4	45	38	60	51	4.33	0.43
The products/services offered by the microfinance is safe for me	2	2	5	4	12	10	40	34	58	50	4.26	0.46
The products/services offered by the microfinance satisfies my needs	2	2	5	4	11	9	42	36	57	49	4.26	0.47
The products/services offered by the microfinance is useful to me	2	2	7	6	15	13	41	35	52	44	4.15	0.5
The loan size offered by the microfinance is good	14	12	12	10	15	13	34	29	42	36	3.67	0.71
The terms and conditions of the microfinance loan are favorable	21	18	17	15	8	7	43	37	28	24	3.34	0.81
The microfinance	8	7	12	10	18	15	39	33	40	34	3.78	0.76

products/services are efficient												
The terms and conditions on microfinance products/services are user friendly	25	21	24	21	16	14	34	29	18	15	2.97	0.54
The microfinance products/services are always appropriate	5	4	11	9	19	16	55	47	27	23	3.75	0.64
The loan repayment period is favorable	24	21	30	26	18	15	25	21	20	17	2.89	0.81
Overall Mean											**3.74**	

Source: Primary Data (2023)

In relation to financial product design used in GOSHEN PLC, the results from the table 4.2, indicate that 2% of respondents strongly disagreed, 4% of respondents disagreed and 4% of respondent were neutral, whereas 38% of respondents agreed and the majority 51% of respondents strongly agreed that The products/services offered by the microfinance suits my needs, as shown by very high mean score of 4.33 with standard deviation of 0.43 which implies that there is very high evidence of existing fact and homogeneity responses.

The results from the table 4.2, indicate that 2% of respondents strongly disagreed, 4% of respondents disagreed, 10% of respondent were neutral, whereas 34% of respondents agreed and the most 50% of respondents strongly agreed that The products/services offered by the microfinance is safe for me, as shown by very high mean score of 4.26 with standard deviation of 0.46 which implies that there is strong evidence of existing fact and homogeneity responses.

The results from the table 4.2, indicate that 2% of respondents strongly disagreed, 4% disagreed and 9% were neutral, whereas 36% agreed and the majority 49% of respondents strongly agreed that the products/services offered by the microfinance satisfies their needs, as shown by very high mean score of 4.26 with standard deviation of 0.47 which implies that there is evidence of existing fact and homogeneity responses.

The results from the table 4.2, indicate that 2% of respondents strongly disagreed, 6% disagreed, 13% were neutral, 35% agreed and majority 44% of respondents strongly agreed that The products/services offered by the microfinance is useful to me, as shown by high mean score of 4.15 with standard deviation of 0.50 which implies that there is evidence of existing fact and homogeneity responses.

Also it was indicated in table 4.2 that 12% of respondents strongly disagreed, 10% disagreed and 13% were neutral, whereas 29% agreed and the majority 36% of respondents strongly agreed that The loan size offered by the microfinance is good, as shown by high mean score of 3.67 with standard deviation of 0.71 which implies that there is high evidence of existing fact and heterogeneity responses.

The 6th statement shows that 18% of respondents strongly disagreed, 15% disagreed, 7% were neutral, whereas most 37% of respondents agreed and 24% strongly agreed that the terms and conditions of the microfinance loan are favorable, as shown by moderate mean score of 3.34 with standard deviation of 0.81 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The results from the table 4.2, indicate that 8% of respondents strongly disagreed, 10% disagreed and 15% were neutral, whereas 33% agreed and the majority 34% of respondents strongly agreed that the microfinance products/services are efficient, as shown by high mean score of 3.78 with standard deviation of 0.76 which implies that there is evidence of existing fact and heterogeneity responses.

The 8th statement indicates that 21% of respondents strongly disagreed, 21% also disagreed, 14% were neutral, whereas the majority 29% agreed and 15% of respondents strongly agreed that the terms and conditions on microfinance products/services are user friendly, as shown by moderate mean score of 2.97 with standard deviation of 0.54 which implies that there is low evidence of existing fact and heterogeneity responses.

The 9th statement indicate that 4% of respondents strongly disagreed, 9% also disagreed, 16% were neutral, whereas the majority 47% agreed and 23% of respondents strongly agreed that The microfinance products/services are always appropriate, as shown by high mean score of 3.75 with standard deviation of 0.64 which implies that there is high evidence of existing fact and heterogeneity responses.

Finally, findings from the table 4.2, indicate that 24% of respondents strongly disagreed, the majority 26% of respondents disagreed, 15% of respondent were neutral, whereas 21% of respondents agreed and 17% of respondents strongly agreed that the loan repayment period is favorable, as indicated by low mean score of 2.89 with standard deviation of 0.81 which implies that there is low evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to financial product design used in GOSHEN PLC was at high extent with the average mean of 3.74, which is interpreted as a high mean, and implies that financial product design is considered at a high extent within GOSHEN PLC.

4.3.2 Views on Financial inclusion in GOSHEN PLC

The study sought to assess perception of respondents on the financial inclusion in GOSHEN PLC, the respondents were questioned if they agreed or disagreed with the statements with regard to financial inclusion. The findings were presented in the table 4.3.

Table 4. 9 Financial inclusion in GOSHEN PLC

Statement on Financial inclusion	**SD**		**D**		**UN**		**A**		**SA**		**M**	**SD**
N=117	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
I can easily access financial services because there are many microfinance near me	2	2	5	4	10	9	34	29	66	56	4.34	0.42
I can easily access financial services because of wide coverage by the microfinance	21	18	24	21	15	13	46	39	11	9	3.02	0.75
I can easily access financial services because the microfinance offer it regularly	15	13	30	26	15	13	40	34	17	15	3.12	0.63

The financial services offered by the microfinance are affordable	11	9	9	8	20	17	44	38	33	28	3.68	0.53
The financial services offered by the microfinance are readily available	14	12	11	9	16	14	41	35	35	30	3.62	0.58
The microfinance offer varieties of products	21	18	15	13	17	15	32	27	32	27	3.33	0.71
The financial services offered by the microfinance are reliable	14	12	19	16	20	17	34	29	30	26	3.40	0.66
The financial services offered by the microfinance are convenient	14	12	22	19	18	15	35	30	28	24	3.35	0.7
The financial services offered by the microfinance are relevant	15	13	14	12	22	19	36	31	30	26	3.44	0.64
The financial services offered by the microfinance have improved my standard of living	12	10	8	7	11	9	49	42	37	32	3.78	0.61
Overall Mean											**3.51**	

Source: Primary Data (2023)

In relation to financial inclusion used in GOSHEN PLC, the results from the table 4.3, indicate that 2% of respondents strongly disagreed, 4% of respondents disagreed and 9% of respondent were neutral, whereas 34% of respondents agreed and the majority 56% of respondents strongly agreed that they can easily access financial services because there are many microfinance near them, as shown by very high mean score of 4.34 with standard deviation of 0.42 which implies that there is high evidence of existing fact and homogeneity responses.

However, the results from the table 4.3, indicate that 18% of respondents strongly disagreed, 21% of respondents disagreed, 13% of respondent were neutral, whereas majority 39% of respondents agreed and only 9% of respondents strongly agreed that they can easily access financial services because of wide coverage by the microfinance, as shown by moderate mean score of 3.02 with standard deviation of 0.75 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The results from the table 4.3, indicate that 13% of respondents strongly disagreed, 26% disagreed and 13% were neutral, whereas the most of respondents 34% agreed and 15% of respondents strongly agreed that they can easily access financial services because the microfinance offer it regularly, as shown by moderate mean score of 3.12 with standard deviation of 0.63 which implies that there is evidence of existing fact and heterogeneity responses.

The 4th statement from table 4.3, indicate that 9% of respondents strongly disagreed, 8% disagreed, 17% were neutral, majority 38% agreed and 28% of respondents strongly agreed that the financial services offered by the microfinance are affordable, as shown by high mean score of 3.68 with standard deviation of 0.53 which implies that there is evidence of existing fact and heterogeneity responses.

Also it was indicated in table 4.3 that 12% of respondents strongly disagreed, 9% disagreed and 14% were neutral, whereas 35% agreed and 30% of respondents strongly agreed that The financial services offered by the microfinance are readily available, as shown by high mean score of 3.62 with standard deviation of 0.58 which implies that there is high evidence of existing fact and heterogeneity responses.

The 6th statement shows that 18% of respondents strongly disagreed, 13% disagreed, 15% were neutral, whereas most 27% of respondents agreed and other 27% strongly agreed that The microfinance offer varieties of products, as shown by moderate mean score of 3.33 with standard deviation of 0.71 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The results from the table 4.3, indicate that 12% of respondents strongly disagreed, 16% disagreed and 17% were neutral, whereas majority 29% agreed and 26% of respondents strongly agreed that The financial services offered by the microfinance are reliable, as shown by moderate mean score of 3.40 with standard deviation of 0.66 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The 8th statement indicates that 12% of respondents strongly disagreed, 19% disagreed, 15% were neutral, whereas the majority 30% agreed and 24% of respondents strongly agreed that The financial services offered by the microfinance are convenient, as shown by moderate mean score of 3.35 with standard deviation of 0.70 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The 9th statement indicates that 13% of respondents strongly disagreed, 12% also disagreed, 19% were neutral, whereas the majority 31% agreed and 26% of respondents strongly agreed that The financial services offered by the microfinance are relevant, as shown by moderate mean score of 3.44 with standard deviation of 0.64 which implies that there is moderate evidence of existing fact and heterogeneity responses.

Finally, findings from the table 4.3, indicate that 10% of respondents strongly disagreed, 7% of respondents disagreed, 9% of respondent were neutral, whereas majority 42% of respondents agreed and 32% of respondents strongly agreed that The financial services offered by the microfinance have improved my standard of living, as indicated by high mean score of 3.78 with standard deviation of 0.61 which implies that there is high evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to financial inclusion in GOSHEN PLC was at moderate extent with the average mean of 3.51, which is interpreted as a moderate mean, and implies that financial inclusion appears moderately within GOSHEN PLC.

4.3.3. Views on Financial Literacy in GOSHEN PLC

The study sought to assess perception of respondents on the financial literacy in GOSHEN PLC. The respondents were questioned if agreed or disagreed with the statements with regard to financial literacy within GOSHEN PLC. The findings were presented in the following table 4.4.

Table 4. 10 Views on Financial literacy in GOSHEN PLC

Statement on financial literacy	**SD**		**D**		**UN**		**A**		**SA**		**M**	**SD**
N=117	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**	**Fr**	**%**		
I can easily make financial decisions and choices	15	13	17	15	20	17	45	38	20	17	3.32	0.67
I can easily prepare a budget and stick on it	5	4	8	7	15	13	64	55	25	21	3.82	0.54
I can easily compute interest rate on a loan	45	38	28	24	10	9	24	21	10	9	2.37	0.52
I understand the concept of inflation	25	21	31	26	14	12	25	21	22	19	2.90	0.72
I can easily compute compound interest on savings	39	33	30	26	12	10	18	15	18	15	2.54	0.57
I can determine cost from financial dealing	39	33	25	21	15	13	17	15	21	18	2.62	0.67
I can determine benefit from financial dealing	35	30	28	24	11	9	25	21	18	15	2.68	0.7
I'm always interested in financial matters	5	4	2	2	8	7	21	18	81	69	4.46	0.44
I'm always interested in dealing with financial providers	3	3	3	3	10	9	23	20	78	67	4.45	0.41
I always save regularly	11	9	17	15	12	10	32	27	45	38	3.71	0.65
Overall Mean											**3.29**	

Source: Primary Data (2023)

In relation to financial literacy in GOSHEN PLC, the results from the table 4.4, indicate that 13% of respondents strongly disagreed, 15% of respondents disagreed and 17% of respondent were neutral, whereas majority 38% of respondents agreed and the majority 17% of respondents strongly agreed that they can easily make financial decisions and choices, as shown by moderate mean score of 3.32 with standard deviation of 0.67 which implies that there is moderate evidence of existing fact and heterogeneity responses.

The results from the table 4.4, indicate that 4% of respondents strongly disagreed, 7% of respondents disagreed, 13% of respondent were neutral, whereas majority 55% of respondents agreed and 21% of respondents strongly agreed that they can easily prepare a budget and stick on it, as shown by high mean score of 3.82 with standard deviation of 0.54 which implies that there is high evidence of existing fact and heterogeneity responses.

However, the results from the table 4.4, indicate that most respondents 38% strongly disagreed, 24% disagreed and 9% were neutral, whereas 21% agreed and only 9% of respondents strongly agreed that they can easily compute interest rate on a loan, as shown by low mean score of 2.37 with standard deviation of 0.52 which implies that there is low evidence of existing fact and heterogeneity responses.

The 4th statement from table 4.4, indicate that 21% of respondents strongly disagreed, 26% disagreed, 12% were neutral, majority 21% agreed and 19% of respondents strongly agreed that they understand the concept of inflation, as shown by moderate mean score of 2.90 with standard deviation of 0.72 which implies that there is moderate evidence of existing fact and heterogeneity responses.

Also it is seen in table 4.4 that majority 33% of respondents strongly disagreed, 26% disagreed and 10% were neutral, whereas 15% agreed and 15% of respondents strongly agreed that they can easily compute compound interest on savings, as shown by low mean score of 2.54 with standard deviation of 0.57 which implies that there is low evidence of existing fact and heterogeneity responses.

The 6th statement also shows that majority 33% of respondents strongly disagreed, 21% disagreed, 13% were neutral, whereas 15% of respondents agreed and other 18% strongly agreed that they can determine cost from financial dealing, as shown by low mean score of 2.62 with standard deviation of 0.67 which implies that there is low evidence of existing fact and heterogeneity responses.

The results from the table 4.4, indicate that most respondents 30% strongly disagreed, 24% disagreed and 9% were neutral, whereas 21% agreed and 15% of respondents strongly agreed that they can determine benefit from financial dealing, as shown by low mean score of 2.68 with standard deviation of 0.70 which implies that there is low evidence of existing fact and heterogeneity responses.

However, the 8th statement indicates that 4% of respondents strongly disagreed, 2% disagreed, 7% were neutral, whereas 18% agreed and majority 69% of respondents strongly agreed that they are always interested in financial matters, as shown by very high mean score of 4.46 with standard deviation of 0.44 which implies that there is very high evidence of existing fact and homogeneity responses.

The 9th statement indicates that 3% of respondents strongly disagreed, 3% also disagreed, 9% were neutral, whereas 20% agreed and majority 67% of respondents strongly agreed that they are always interested in dealing with financial providers, as shown by very high mean score of 4.45 with standard deviation of 0.41 which implies that there is very high evidence of existing fact and homogeneity responses.

Finally, findings from the table 4.4, indicate that 9% of respondents strongly disagreed, 15% of respondents disagreed, 12% of respondent were neutral, whereas 27% of respondents agreed and majority 38% of respondents strongly agreed that they always save regularly, as indicated by high mean score of 3.71 with standard deviation of 0.65 which implies that there is high evidence of existing fact and heterogeneity responses.

Briefly, the overall mean of respondents on the statements regarding to financial literacy in GOSHEN PLC was at moderate extent with the average mean of 3.29, which is interpreted as a moderate mean, and implies that financial literacy is at a moderate extent within GOSHEN PLC.

4.4. Inferential statistics

The study used inferential statistics such as correlation analysis and multiple regression to determine the effect of Financial product design, financial literacy on financial inclusion in Microfinance institutions in Rwanda, specifically by examining the effect of financial product design on financial inclusion in Goshen Finance Plc, examining the effect of financial literacy on financial inclusion in Goshen Finance Plc, and establishing the moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc.

4.4.1. Effect of financial product design on financial inclusion in Goshen Finance Plc

The first objective was to examine the effect of financial product design on financial inclusion in Goshen Finance Plc. This was actualized through the testing of the first hypothesis (Ho1) which stated that there is a significant effect of financial product design on financial inclusion in Goshen Finance Plc. A hypothesis states a presumed relationship between variables in a way that can be tested with empirical data and it may take a cause-effect relationship. A hypothesis is used to give directions for the research and establish relationship between variables (Kothar & Garg, 2014).

The first step in conducting regression analysis to test the stated hypothesis was to establish the existence of a linear relationship between financial product design and financial inclusion. This was carried through Pearson correlation analysis.

Table 4.5 presents the resulting correlation matrix between Financial product design measures and financial inclusion measures.

Table 4. 11 Correlations Analysis

		Financial Product Design	Financial literacy	Financial inclusion
Financial Product Design	Pearson correlation	1		
	Sig. (2-tailed)	0.000		
Financial literacy	Pearson correlation	0.312**	1	
	Sig. (2-tailed)	0.000		
Financial inclusion	Pearson correlation	.669**	.686**	1
	Sig. (2-tailed)	0.000	0.000	
	N	117	117	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.5 indicates that at 99% level of confidence, there is sufficient evidence to show that there is moderate positive significant association between financial inclusion and financial product design ($r=0.669$, $p < 0.001$).

Also Table 4.5 indicates that at 99% level of confidence, there is sufficient evidence to show that there is moderate positive significant correlation between financial literacy and financial product design ($r=0.686$, $p < 0.001$).

However, taking cognizance of the fact that correlation does not necessarily mean causation, a simple linear regression model was fitted between measures financial product design and the measures of financial inclusion. Detailed results of the simple linear regression model involving mean value of financial product design measures are displayed in Tables 4.7, 4.8 and 4.9 and discussed.

The second step consisting on testing the regression models. After running the regression model, post-estimation tests are conducted to ensure that the model was a good fit and the estimates received from the model were efficient and reliable. This study satisfactorily performed conditional diagnostics statistical tests. The study tested for multicollinearity

Multicollinearity is the undesirable situation where the correlations among the independent variables are strong. Variance Inflation Factor (VIF) was used to assess multicollinearity in the multiple regression models. Zikmund, Babin, Car and Griffin (2013) mentioned when there are two or more variables have a Variance Inflation Factor (VIF) of 5 and above, amongst them one should be removed from the regression analysis as this shows multicollinearity. Thus, in a study, if two or more variables have a Variance Inflation Factor of 5 or more than that one of them must be removed out if the same.

Table 4. 12 Test for Multicollinearity

		Collinearity Statistics	
Model		**Tolerance**	**VIF**
	Financial product design	0.712	1.985
	Financial inclusion	0.779	1.664
	Financial literacy	0.701	1.920

Source: Primary Data (2023)

Table 4.6, indicated that all the independent variables were not highly correlated with each other as indicated by the Variance Inflation Factors (VIF) of below five. Since all 3 variables has VIF which is less than 5 indicating that there is no multicollinearity. Therefore, all variable of predictors will be included in the model.

4.4.3. Multiple Linear regression

The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of Customer centric, Product features and Affordability on the financial inclusion in GOSHEN PLC at a 5% significance level. This section, therefore, provides the analysis of variance and regression coefficients.

Table 4. 13 ANOVA of the effect of financial product design on Financial Inclusion in GOSHEN PLC.

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	22.936	3	22.936	53.615	.001b
	Residual	47.912	113	0.214		
	Total	70.8475	116			

a. Dependent Variable: Financial inclusion

b. Predictors: (Constant), Customer centric approach, Product features, and affordability

Table 4.8, shows the Analysis of Variance (ANOVA) of regression analysis between independent variable financial product design (Customer centric approach, Product features, and affordability) and the dependent variable; financial inclusion in GOSHEN PLC. Further, the analysis of variance was used to examine whether the regression model was a good fit for the data. The F-calculated was 53.615 and the p-value was 0.001, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of the predictors of independent variable financial product design (Customer centric approach, Product features, and affordability) on the financial inclusion in GOSHEN Plc.

To assess the model parameter that was significant different from zero, individual parameter t-test was carried out at 95% level of confidence, the results were as illustrated in table 4.9.

Table 4. 14 Financial product design-Financial inclusion Model Summary in GOSHEN Plc

Model	R	R Square	Adjusted R 2	Std Error of the estimate
1	0.569a	0.324	0.321	0.65405

Model		Unstandardized Coefficient		Standardized coef.	t	Sig.
		B	Std. Error	Beta		
	(Constant)	18.066	2.533		7.131	0.000
1	Customer centric App.	0.343	0.112	0.224	3.049	0.003
	Product Feature	0.112	0.118	0.320	4.323	0.000
	Affordability	0.213	0.1331	0.437	1.609	0.003

a. Predictors: (Constant), Customer centric approach, Product features, and affordability

b. Dependent: Financial inclusion

The model summary (Table 4.8) revealed that R2 change was 0.324, implying that financial product design contributes 32.4% on financial inclusion in Goshen Plc. It therefore shows that financial product design has a positive effect on financial inclusion. The basis of Cohen (2018), this variance explained was deemed to be fairly large. Factors unaccounted by this model are explained by 67.6% of financial inclusion. The shrinkage between R2=0.324 and adjusted R2=0.321 was 0.003, showing that the model was able to give a fitting generalization. It has been demonstrated that Shrinkage below 0.5 signifies a good external validity for the model (Field, 2005). However, rather small proportion (32.4%) of variance in financial inclusion explained by financial product design suggests that certain issues need to be addressed for financial product design to work effectively and subsequently justify the inclusion of moderator variables to enhance its predictive power.

From Table 4.8 above, composite scores for financial product design were used where the components of financial product design are combined and presented as a single unit. This is because financial product design is a continuous process that entails various parts of the process making it hard to isolate and use individual components or constructs to show the relationship. OECD (2008) recommended that in such cases a composite score can be used. Composite scores represent small sets of data points that are highly related to one another conceptually or statistically. When the items are combined and presented as a single score, they help in reducing the potential for information overload.

Table 4.8 provides the summary of results of regression analysis for the effect of Customer centric approach, Product features, and affordability on financial inclusion in Goshen Plc. The results indicate that customer centric approach ($\beta 1= 0.224$, $t= 3.049$, p-value=.003<0.05), product features ($\beta 2= 0.320$, $t= 4.323$, p-value=0.000<0.05), and affordability ($\beta 3= 0.437$, $t=1.609$, p-value=0.003 <0.05) have positive and significant effect on financial inclusion in Goshen Plc. This shows that 1% increase in customer centric approach, product feature, and affordability would lead respectively to 0.224 units, 0.320%, and 0.437% increases on financial inclusion in Goshen Plc.

Hypothesis 1 testing:

The results show that we should accept the first hypothesis of the study and conclude that financial product design does have a significant effect on financial inclusion in Goshen finance. The conclusion therefore is that Financial product design contributes to financial inclusion hence it has a positive relationship with financial inclusion, and H1 is accepted at 5% level of significance.

The results are supported by the results of the study of Okello *et al* (2022) sought to establish the effect of microfinance banking on financial inclusion in Kenya, and concluded that concluded that the availability of micro banking products, facilities and a strong branch network are one of the factors that enhance financial inclusion.

4.4.2. Effect of Financial literacy on financial inclusion in GOSHEN Plc

The second objective was to examine the effect of financial literacy on financial inclusion in Goshen Finance Plc. This was actualized through the testing of the second hypothesis (H2) which stated that financial literacy significantly affects financial inclusion in Goshen Finance Plc. The study determined the regression analysis to demonstrate the relationship between the independent variables and the dependent variable. Specifically, the regression analysis provides the effect of financial decision making and risk management as predictors of the financial literacy on financial inclusion in GOSHEN Plc at a 5% significance level. This section, therefore, provides the analysis of variance and regression coefficients.

Table 4. 15 ANOVA of the effect of financial literacy on financial inclusion in GOSHEN PLC

Model		**Sum of squares**	**Df**	**Mean square**	**F**	**Sig.**
2	Regression	22.656	2	5.664	27.340	.000b
	Residual	19.886	114	0.207		
	Total	42.543	116			

a. Dependent Variable: Financial inclusion

b. Predictors: (Constant), financial decision making and risk management

Results in table 4.9, show that the model of the study was significant at 0.000% level of significance which suggests that the data was ideal for making study inferences as the significance level was below 0.05. An F-statistics of 27.340 which was established as the ratio of Mean Square Regression to the Mean Square Residual, further showed that the model of the study was significant as evident by the significance level of 0.000 < 0.05, demonstrating that changes in financial literacy (financial decision making and risk management) significantly causes changes in financial inclusion in GOSHEN Plc.

To assess the model parameter that was significant different from zero, individual parameter t-test was carried out at 95% level of confidence, the results were as illustrated in table 4.12

Table 4. 16 Estimated Regression Coefficients of financial literacy on financial inclusion in GOSHEN Plc.

Model	R	R Square	Adjusted R 2	Std Error of the estimate
2	.730a	0.533	0.513	0.45995

Model		Unstandardized Coefficient		Standardized coef.	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	9.667	1.785		5.416	0.002
	FDM	0.497	0.444	0.290	1.500	0.031
	RM	0.267	0.596	0.508	2.798	0.028

a. Predictors: (Constant), X1= Financial literacy

b. Dependent Variable: Financial inclusion

The model summary (Table 4.10) revealed that R2 change was 0.533, implying that financial decision making and risk management contributes 53.3% on financial inclusion in Goshen Plc. It therefore shows that financial literacy has a positive effect on financial inclusion. The basis of Cohen (2018), this variance explained was deemed to be large. Factors unaccounted for by this model are explained 46.7% of financial inclusion. The shrinkage between R2=0.533 and adjusted R2=0.513 was 0.020, showing that the model was able to give a fitting generalization. It has been demonstrated that Shrinkage below 0.5 signifies a good external validity for the model (Field, 2005).

Table 4.10 provides the summary of results of regression analysis for the effect of financial decision making and risk management on financial inclusion in Goshen Plc.. The results indicate that financial decision making ($\beta1= 0.290$, t=1.500, p-value=0.031<0.05) has positive and significant effect on financial inclusion in Goshen Plc, and risk management ($\beta2= 0.508$, t= 2.798, p-value=0.028<0.05) has positive and significant effect on financial inclusion in Goshen Plc. This shows that 1 unit increase in financial decision making will lead to 0.290 units increase on financial inclusion in Goshen Plc, while 1 unit increase in Risk management will lead to 0.508 units increase on financial inclusion in Goshen Plc.

Hypothesis 2 testing:

The results show that we should accept the second hypothesis of the study and conclude that financial literacy does have a significant effect on financial inclusion in Goshen finance. The conclusion therefore is that financial literacy contributes to financial inclusion hence it has a positive relationship with financial inclusion, and H2 is accepted at 5% level of significance. Table 4.10 shows 1 unit increase in financial decision making will lead to 0.290 units increase on financial inclusion in Goshen Plc, while 1 unit increase in Risk management will lead to 0.508% increase on financial inclusion in Goshen Plc.

The results support the results of Morshadul, Thi and Ariful (2023), who investigated the impacts of financial knowledge on financial access through banking, microfinance, and fintech access using the Bangladesh rural population data, and found thatsome variables such as profession, income level, knowledge regarding depositing and withdrawing money, and knowledge regarding interest rate highly affected the overall access to finance

4.3.3. Moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc

Objective three sought to establish how financial literacy moderates the link between financial product design and financial inclusion in Goshen finance Plc of Rwanda. Its null hypothesis was that financial literacy hold a significant moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc. This hypothesis was tested using Moderated Regression Analysis (MRA) facilitated by hierarchical regression approach. Of interest was the interaction between financial product design and financial literacy. Under the hierarchical regression approach, the means of the constructs were computed using the items measuring the respective constructs. The mean composite values of the three constructs were subsequently standardized. Standardized scores(z-score) were preferred for purposes of minimizing threats of multi-collinearity which otherwise could be caused by high correlations between raw financial product design scores and raw financial literacy scores.

Next, the interaction between the standardized financial product design construct and the standardized financial literacy construct (ZPC*ZRF), was also computed. According to Zikmund *et al.* (2013), composite scores represent small sets of data points that are highly related to one another conceptually or statistically. When the items are combined and presented as a single score, they help in reducing the potential for information overload.

Hypothesis 3 Testing

Three steps of the hierarchical regression were employed in line with the three categories of variables. In the first step, financial inclusion was entered as the dependent variable, while the standardized scores of control variables were entered as the independent variables. The standardized scores of financial product design and financial literacy were entered as independent variables in step two. In step three, the standardized interaction score was entered as independent variable. R2 change was triggered to show Test(s) of highest order unconditional interaction(s): results of the test of highest order unconditional interaction presented in Table 4.13 below, yielded a significant R2 change, $\Delta R2 = .0282$, $F (1, 222) = 14.2391$, $p=.0002$. R2 change denotes the level of moderation.

Table 4. 17 Estimated Regression Coefficients for Variables in the Effect of financial literacy on the Relationship between Financial product design-Financial Inclusion Model

	R 2 -Change	**F**	**df 1**	**df 2**	**p**
ZFPD*ZFL	0.0282	14.239	1.000	115.000	0.0002

Model		Unstandardized Coef.		Standardized coef.	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-0.144	0.059		-2.43	0.016
3	Z-score FPD	0.830	0.112	0.830	7.411	0.000
	Z-score FL	-0.023	0.123	0.023	-0.188	0.851
	FPD*FL	0.158	0.043	0.207	3.684	0.000

a. Dependent Variable: Financial Inclusion

b. ZFPD: Z score for financial product design

c. ZFL: Z score for financial literacy

Source: Field Data, (2023)

The results indicates that financial literacy moderated the relationship between financial product design and financial inclusion in Goshen finance Plc in Rwanda.

An examination of the results of step 3 of the hierarchical regression (Table 4.11), revealed the following information: under the moderation of financial literacy: Financial product design, β=0.830, p=0.002 was a significant predictor of financial inclusion because the significant value was less than .001; financial literacy, β=-0.023, p=0.851 were however not significant predictors of financial inclusion because the significant value was more than .001; nevertheless, the interaction between financial product design and financial literacy was significant, β=0.207, p=0.000, this is evidenced by a significant value which was less than .001. The findings therefore means that financial literacy moderate the relationship between financial product design and financial inclusion.

Use of unstandardized coefficients was informed by the recommendations of Whisman and McClelland (2005). The two posited that it is preferable to use un-standardized coefficient when reporting moderation results since they represent simple effects as opposed to main effects expected in additive regression model.

The moderation equation for financial literacy moderating the relationship between financial product design and financial inclusion in the presence of control variables is therefore given as:

FI= -0.144 +0.830FPD–0.023FL+0.207 FPD*FL…Eq.. 4.3

Based on the interaction equation, the results of the regression analysis as illustrated in table 4.13, showed that all the model parameters were significantly different from zero at 95% level of confidence ($p<0.001$). Based on the interaction equation, the results show that, financial product design and the interaction between financial product design and financial literacy were significant. Financial literacy on their own were however not significant. The model results showed that a unit increase in financial product design independently increased financial inclusion levels by 0.830 units. Lastly, a joint unit increase in the interaction between financial literacy and financial product design increases financial inclusion levels by 0.207 units.

Given that financial literacy had no significant effect on financial inclusion, but its interaction with financial product design was significant, there was sufficient evidence to accept the third hypothesis of the study and conclude that financial literacy had a moderating effect on the relationship between financial product design and financial inclusion levels in Goshen finance Plc. The conclusion therefore is that financial literacy moderates the relationship between financial product design and financial inclusion.(Table 4.11), revealed the following information: under the moderation of financial literacy: Financial product design, $\beta=0.830$, $p=0.002$ w

The results imply that Financial product design practices requires that, financial literacy which have the potential to impact positively on the financial product design and financial inclusion link, be implemented if the predictive power of financial product design is to be enhanced.

Moreover, the results imply that, when Goshen finance Plc make effort to enhance financial literacy, the effect that financial product design measures can have on financial inclusion levels at Goshen finance Plc are likely to be increased resulting in higher financial inclusion levels in Goshen finance Plc.

The results are in the same line with the study by Murwanashyaka and Rusibana (2020) who examined the effect of financial inclusion policy on saving in Microfinance Institutions in Rwanda, and whosefindings showed that financial literacy has positive and significant effect on Saving on a bank account, and use of bank loan for beneficiaries in MFIs in Rwanda ($\beta3$=.007, t=.077 and p - value=.939 greater than 5%).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

This chapter gives the summary of the research findings that were obtained from the study that was anchored on specific objectives, conclusions that were made, the recommendations that were drawn, and finally, the suggested areas for further researches.

5.1. Summary of findings

This section presented the findings summary based on the research specific objectives such as to examine the effect of financial product design on financial inclusion in Goshen Finance Plc, to examine the effect of financial literacy on financial inclusion in Goshen Finance Plc, and to establish the moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc.

5.1.1. Influence of Financial product design on financial inclusion in GOSHEN PLC.

The multiple regression between financial product design and financial inclusion in GOSHEN PLC proved that financial product design (centric approach, product feature, and affordability) contributes 32.4% on financial inclusion in Goshen Plc. Further, the analysis of variance was used to examine whether the regression model was a good fit for the data. The F-calculated was 53.615 and the p-value was 0.001, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of the independent variable financial product design on the financial inclusion in GOSHEN Plc.

Other factors being constant, 1% increase in customer centric approach, product feature, and affordability would lead respectively to 0.224 units, 0.320%, and 0.437% increases on financial inclusion in Goshen Plc.

5.1.2. Effect of Financial Literacy on Financial Inclusion in GOSHEN PLC

The model summary (Table 4.10) revealed that R2 change was 0.533, implying that financial literacy contributes 53.3% on financial inclusion in Goshen Plc. It therefore shows that financial literacy (financial decision making and risk management) has a positive effect on financial inclusion. Further, an F-statistics of 27.340 which was established as the ratio of Mean Square Regression to the Mean Square Residual, further showed that the model of the study was significant as evident by the significance level of $0.000 < 0.05$, demonstrating that changes in financial literacy (financial decision making and risk management) significantly causes changes in financial inclusion in GOSHEN Plc.

Other factors being constant, 1 unit increase in financial decision making will lead to 0.290 units increase on financial inclusion in Goshen Plc, while 1 unit increase in Risk management will lead to 0.508 units increase on financial inclusion in Goshen Plc. This means that financial literacy has significant effect on the financial inclusion in GOSHEN Plc.

5.1.3. Moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc

The multiple regression shows that Financial product design, $b=0.830$, $p=0.002$ was a significant predictor of financial inclusion because the significant value was less than .001; financial literacy, $b=-0.023$, $p=0.851$ were however not significant predictors of financial inclusion because the significant value was more than .001; nevertheless, the interaction between financial product design and financial literacy was significant $\beta=0.207$, $p=0.000$, this is evidenced by a significant value which was less than .001. The findings therefore means that financial literacy moderate the relationship between financial product design and financial inclusion, as a joint unit increase in the interaction between financial literacy and financial product design increases financial inclusion levels by 0.207 units.

5.2 Conclusion

On the basis of findings, the study concluded that there were significant and positive effects between financial product design and financial inclusion, that there was significant effect of financial literacy on financial inclusion, and that financial literacy moderate the relationship between financial product design and financial inclusion GOSHEN PLC. Therefore, the study confirmed H1 stating that there is a significant effect of financial product design on financial inclusion in Goshen Finance Plc. The study also accepted H2 stipulating that financial literacy significantly affects financial inclusion in Goshen Finance Plc, and also the study confirmed H3 stating that financial literacy hold a significant moderating effect of financial literacy between the financial product design and the financial inclusion in Goshen Finance Plc. Therefore, objectives of this research were so achieved very well.

H1

The conclusion therefore is that financial product design contributes to financial inclusion hence it has a positive relationship with financial inclusion, and H1 is accepted at 5% level of significance.

H2

The conclusion therefore is that financial literacy contributes to financial inclusion hence it has a positive relationship with financial inclusion, and H2 is accepted at 5% level of significance.

H3

The conclusion therefore is that financial literacy moderates the relationship between financial product design and financial inclusion. (Table 4.11), revealed the following information: under the moderation of financial literacy.

5.3 Recommendations

In line with some weaknesses found within the research, the following recommendation are proposed to improve financial inclusion of microfinances in Rwanda:

The study recommends Goshen finance, customers and policy makers various recommendations based on findings of the study.

The study recommends that GOSHEN PLC ensure that the loan repayment be favorable to its customer in order to ensure its repayment. GOSHEN PLC was also recommended to provide teachings or training to its customers in relation of computing interest rates in order to ensure they acquire enough financial literacy, which may enhance more financial inclusion in the MFI. Additionally, the study recommended to Goshen Plc in terms of providing training on determining cost and benefits generated within financial dealing

For customers, the study recommends them to participate in training provided within financial literacy as it was proved that most of them are not aware of many finance services, specifically related to computing interest.

For the policy maker, the study recommends that improvements measures should be taken in order to mobilize Rwandans to participate within financial institutions, especially microfinances, and also measures to enhance the level of financial literacy of Rwandans, which should increase financial inclusion.

5.5. Suggestions for Further Studies

Based on findings of the study, future studies may concentrate on:

The study was carried out in GOSHEN PLC, thus the same study should be carried out in another MFI in Rwanda to find out if the same results will be obtained.

This research was carried in a MFI, thus it is suggested that a comparative analysis be done within commercial banks in Rwanda.

This research has not yet expressed all variables related to financial product design, financial literacy that may have affected the financial inclusion in GOSHEN PLC, then other researchers who are interested in similar problems are suggested to conduct continuation research, by adding other variables not assessed within this study. Further research should be also undertaken on the other variables of financial inclusion.

REFERENCES

Abarcar H., Barua T. F. & Yang S. (2020). Impact of financial literacy models on the financial behavior of individuals: An empirical study on the Indian context. *Strategic Change, 30*(4), 377-387.

Aron F. (2020). Green microfinance and women's empowerment: why do financial literacy matter? *Sustainability, 14*(5), 31-39

Barajas R. A. & Naceur D. (2020). Repayment in microfinance: The role of financial literacy and caste. *Discussion papers in Economics, 14(*6), 1-25.

Beck G. & Honohan D. (2022). Financing structure and financial sustainability of selected SADC microfinance institutions (MFIs). *Annals of Public and Cooperative Economics, 89*(4), 665-696.

Berhanu, A., Amare, A., Gurmessa, B., Bekele, Y. & Chalchisa, T. (2021). Does microcredit use helps farmers win the battle against food insecurity: evidence from Jimma zone of Southwest Ethiopia. *Agric & Food Security 1* (10), 51-129.

Buch S. (2020). Intended and unintended effects of specialized regulation on microfinance institutions' double-bottom line management. *Annals of Public and Cooperative Economics, 93(*4), 977-999.

Calderone G. & Sarr D. A. (2020). Client Satisfaction: Key Factors to Sustainability of Microfinance Institutions (MFIs). *Interdisciplinary Journal of Management and Social Sciences, 2*(1), 32–42.

Carpena B. & Zia F. (2022). Exploring the role of microfinance in women's empowerment and entrepreneurial development: a qualitative study. *Future Business Journal, 8(*1), 57.

Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th Ed.).* Los Angeles, Calif.: SAGE.

Duray D. (2021). Digital financial literacy and microfinancing among underprivileged communities in Cambodia. *Romanian Journal of Information Technology and Automatic Control, 32*(4), 77-92.

Magali J. (Financial Literacy Variables in Microfinance Institutions studies: A Systematic Literature ReviewOS). *Pan African Journal of Business Management, 6(*1), 179-209

Morshed, Z., Habib, M., and Jubb, C. (2020). Does regulation influence microfinance institutions to be more client responsive? I*nternational Journal of Financial Studies, 8*(4), 1-24

Kakooza B. (2022) Improving loan repayment in Ghana: Does financial literacy matter? *Cogent Economics & Finance, 8*(1), 178-769.

Kotlikoff Y. (2020) Finance literacy as a tool for microfinancing: a literature review. *International Journal of Business and Economics, 6*(2), 189-215.

Kothari, G. (2011). *Research Methodology: Methods and Techniques.* New Age International Publishers

Kothari, C.R. & Garg, G (2014). *Research Methodology: Methods and Techniques*. New Age International Publishers.

Kumari T., Azam Y. & Khalidah B. (2020), Role of gender on the performance of Indian microfinance institutions. *Gender in Management, 34(*6), 429-443.

Le Y. A. & Chuc P. (2019) Microfinance and risk management an impact evaluation of a financial education programme AMK Cambodia *(No. 994967593502676). International Labour Organization*

Marchetti P. & Zia R. (2021). Determinants of Financial Literacy on Micro Waqf Banks in Aceh. Share. *Jurnal Ekonomi dan Keuangan Islam, 11*(1), 229-250

Miller F. (2020). The Economic Importance of Financial Literacy Theory and Evidence. From The Economic Importance of Financial Literacy: *Theory and Evidence (nber.org) (Retrieved on 28 May 2023)*

Mugwaneza, B. (2019). Exploring how Microfinance Institutions Can Enable Access to Financial Services in Rural Areas of Rwanda - Case study of Réseau Interdiocésain de Microfinance. *Master's degree, Swedish University of Agricultural Sciences*.

Murwanashyaka A. & Rusibana C. (2020) Efficiency Assessment of Microfinance Modelling: Best Practices in the Context of Improving Economic Development in Rwanda. *Africa Journal of Management*, *4*(3), 282-305

NBR (2023). *Microfinance Institutions,* National Bank of Rwanda. https://www.bnr.rw/financial-stability/microfinance-institutions/

Ntuite S.R. (2020). The contribution of saving and credit cooperatives (SACCOS) on the improvement of members' socio economic development in Rwanda: Opportunities and challenges: Evidence from Umwalimu SACCO- Huye District. *Doctorate thesis Submitted to School of Economics, Department of Social sciences, University of Koblenz-Landau, Germany.*

Okello G. C. B., Ntayi M. J. & Malinga C. A. (2019). Analyzing the relationship between financial literacy and financial inclusion by microfinance banks in developing countries: social network theoretical approach. *International Journal of Sociology and Social Policy ahead-of-print, 10 (2), 4-21.*

Rwanyindo F. (2021) A comparative study on the uptake of outreach programmes, transaction costs and financial literacy by microfinance institutions in Rwanda. *Issues in Business Management and Economics, 1* (6), 142-147

Saunders M (2012). *Research Methode for Business Students.* New Delhiperson Education Ltd

Tripathi V. K. & Badugu D. (2019). Effect of E-Microfinance on Economic Growth in India. *International Journal of African and Asian Studies*, *15* (3), 2-56

Twesige D., Uwamahoro A., Ndikubwimana P., Gasheja F., Misago G. & Hategikimana E. (2021). Causes of loan defaults within Microfinance institutions: Learning from micro and small business owners in Rwanda: A case of MSEs in Kigali. Rwanda *Journal of Social Sciences, Humanities and Business 2* (1), 27-49.

Tripathi V. K. & Badugu D. (2019). Effect of E-Microfinance on Economic Growth in India. *International Journal of African and Asian Studies, 15* (3), 2-56.

APPENDICES

APPENDIX 1: INTRODUCTORY LETTER

Dear Respondent,

I am, Sylvestre Ndayisaba, student at Kigali Independent University; in postgraduate program, Master of Finance; as part of the academic requirements, I have undertaken a research project entitled: "Financial Product Design and Financial Inclusion by microfinance banks in Rwanda; a case of Goshen Finance Plc".

With reference to this research project, there are questions which have been designed for the collection of data that will lead to the successful completion of the study. Therefore, I kindly request you to fill this questionnaire, your views on various aspects of this study will be of great value to it, and all information you furnish in response to this questionnaire will be treated with confidentiality. Please spare a few minutes to answer it and you may feel free when answering the questions. I kindly respect your significant collaboration.

Thank you for your cooperation.

Ndayisaba Sylvestre

Signature:……………; Date:……/……/……….

APPENDIX 2: SURVEY QUESTIONNAIRE DESIGNED FOR MFIs CUSTOMERS

Dear respondent,

This questionnaire is part of a project at Kigali Independent University to meet the requirements for a Master's degree in business administration. We respectfully request your assistance in the study by responding to the following questions. Your participation will undoubtedly be greatly valued. The information gathered for this purpose will be kept totally private and used solely for academic purposes. In this regard, your participation is greatly appreciated.

Subject: **Financial Product Design and Financial Inclusionin microfinance banks in Rwanda**

Case Study:

Section 1: **Demographic Characteristics**

STAFF

1. Names…………
2. Phone Number…………..

3. **Gender or Sex**

   I. Male ☐
   II. Female ☐

4. Age

I. 18-24

II. 26-35

III. 36-45

IV. 46-55

V. Over 55

5. Marital status

I. Single

II. Married

III. Widow

IV. Divorced

6. Educational Level

I. Secondary

II. Bachelor’s degree

III. Master’s degree

IV. PHD

V. Other

7. Employment status

VI. Employed

VII. Unemployed

VIII. Student

IX. Self-employed

XI. Other

8. Experience with this MFI

I. Less than 2 Year's

II. Between 2-5Year's

III. Above 5-10

IV. Over 10 Year's

SECTION 2 A: Financial Product Design

Please keep in mind that the answers to the following questions are based on the following response categories: 1=strongly disagree, 2=disagree, 3=neutral. 5=strongly agree, 4=agree

Financial Product Design		**1**	**2**	**3**	**4**	**5**
FP1	The products/services offered by the microfinance suits my needs	1	2	3	4	5
FP2	The products/services offered by the microfinance is safe for me	1	2	3	4	5
FP3	The products/services offered by the microfinance satisfies my needs	1	2	3	4	5
FP4	The products/services offered by the microfinance is useful to me	1	2	3	4	5
FP5	The loan size offered by the microfinance is good	1	2	3	4	5
FP6	The terms and conditions of the microfinance loan are favorable	1	2	3	4	5
FP7	The microfinance products/services are useful to me	1	2	3	4	5
FP8	The terms and conditions on microfinance products/services are user friendly	1	2	3	4	5
FP9	The microfinance products/services are always appropriate	1	2	3	4	5
FP10	The loan repayment period is favorable	1	2	3	4	5

SECTION 2 B: Financial Literacy

Please note that the answers to the following questions are based on the following response categories: 1=strongly disagree, 2=disagree, 3=neutral. 4 indicates agreement, and 5 indicates strongly agreement.

Financial Literacy		**1**	**2**	**3**	**4**	**5**
FL1	I can easily make financial decisions and choices	1	2	3	4	5
FL2	I can easily prepare a budget and stick on it	1	2	3	4	5
FL3	I can easily compute interest rate on a loan	1	2	3	4	5
FL4	I understand the concept of inflation	1	2	3	4	5
FL5	I can easily compute compound interest on savings	1	2	3	4	5
FL6	I can determine cost from financial dealing	1	2	3	4	5
FL7	I can determine benefit from financial dealing	1	2	3	4	5
FL8	I'm always interested in financial matters	1	2	3	4	5
FL9	I'm always interested in dealing with financial providers	1	2	3	4	5
FL10	I always save regularly	1	2	3	4	5

SECTION 2 C: Financial Inclusion

Please note that the answers to the following questions are based on the following response categories: 1=strongly disagree, 2=disagree, 3=neutral. 4 indicates agreement, and 5 indicates strongly agreement.

Financial Inclusion		**SD**	**D**	**N**	**A**	**SA**
FI1	I can easily access financial services because there are many microfinance near me	1	2	3	4	5
FI2	I can easily access financial services because of wide coverage by the microfinance	1	2	3	4	5
FI3	I can easily access financial services because the microfinance offer it regularly	1	2	3	4	5
FI4	The financial services offered by the microfinance are affordable	1	2	3	4	5
FI5	The financial services offered by the microfinance are readily available	1	2	3	4	5
FI6	The microfinance offer varieties of products	1	2	3	4	5
FI7	The financial services offered by the microfinance are reliable	1	2	3	4	5
FI8	The financial services offered by the microfinance are convenient	1	2	3	4	5
FI9	The financial services offered by the microfinance are relevant	1	2	3	4	5
FI10	The financial services offered by the microfinance have improved my standard of living	1	2	3	4	5

Thank you for your precious time and honest response.

Sincerely,

Ndayisaba Sylvestre

APPENDIX 3: TIMELINE

February 2023	• Chapter 1 presentation
April 2023	• Chapter 2 presentation
May 2023	• Chapter 3 presentation
June 2023	• Proposal submission and presentation
July 2023	• Data collection
August 2023	• Preparation and submission of chapters four and five
September 2023	• Thesis presentation • Publication and deposit to the library

APPENDIX 4: BUDGET

S/N	Description	Cost (Rwf)
1	Internet connection	50,000
2	Field data collection	100,000
3	Hiring assistant in data collection	70,000
	Consultancy fees for experts	70,000
4	Transport fee	50,000
5	Printing and Biding	100,000
6	Publication	200,000
	Total	**640,000**